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USER GUIDE
UGB014-0209
Software Version V4.0

TrueFeed™

Gravimetric Feeder

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1. Introduction

Thank you for purchasing the Conair TrueFeed. This manual is addressed to operators and **qualified technicians** taking care of the feeding of dry additives to ensure correct use of the TrueFeed.

ⓘ **IMPORTANT:** THIS MANUAL MUST BE READ BEFORE INSTALLING THE FEEDER. KEEP THIS MANUAL IN A PLACE ACCESSIBLE FOR ALL OPERATORS.

Conair recommends that you record the model and serial number(s) of your equipment and the date you received it in the User Guide. Our service department uses this information, along with the manual number, to provide help for the specific equipment you have installed.

Please keep this user guide and all manuals, engineering prints and parts lists together for documentation of your equipment.

Date: _____

Manual Number: UGB014-0209

Serial Number(s): _____

Model Number(s): _____

Software Version: _____

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1.1 Symbols

ⓘ Important note

Attention; safety regulations for the operator

1.2 Terms

Operator: A person charged to operate, adjust, maintain and clean the machine.

Qualified Technician: A specialized, suitable trained person authorized to execute the installation, non-routine maintenance or repairs requiring special knowledge of the machine and how it operates.

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2. General information

2.1 Safety

This equipment is only designed and may only be used for the feeding of dry additives.
Any use that is not in conformity with the instructions is considered improper and as such frees the manufacturer from any liability regarding damage to equipment and/or persons.

Before turning on the unit for the first time, ensure that the main power voltage applied is between 80 and 260 VAC.

Always turn off the TrueFeed and disconnect the main power plug from electrical power before performing maintenance.

Ensure that all parts are securely fixed to the extruder or injection molding machine.

Dangerous voltages are present inside the TrueFeed control for up to two (2) minutes after the TrueFeed has been turned off.

2.2 Certification

The Conair TrueFeed is designed and produced in conformity with the following European regulations:

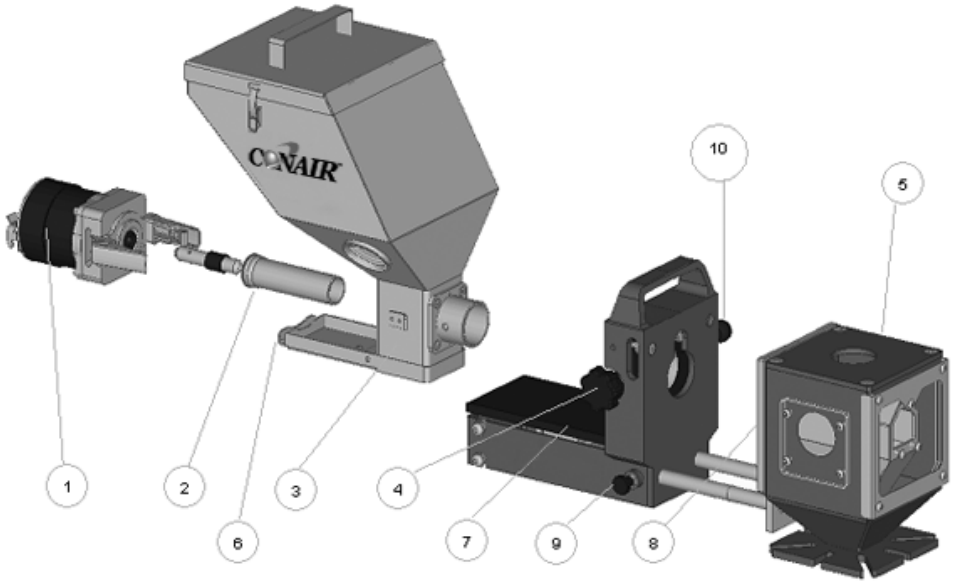
- CE Standards for machinery (health, safety and environment)
- EMC (electromagnetic compatibility)
- VEM (safety electric material)
- 98/37/EC, Annex 1

2.3 Operating environmental conditions

- The unit must be protected against weather conditions
- Operating temperature -4° to 158° F {-20° to 70° C}.
- Protection class: IP-50

3. Overview feeder

3.1 TrueFeed component overview



1 Stepper motor

2 Dispensing cylinder

3 Hopper 0.2 ft^3 {6 liter}

4 Curled knob M10x40

5 Standard NST40 throat adaptor

6 Material discharge slide (in closed position)

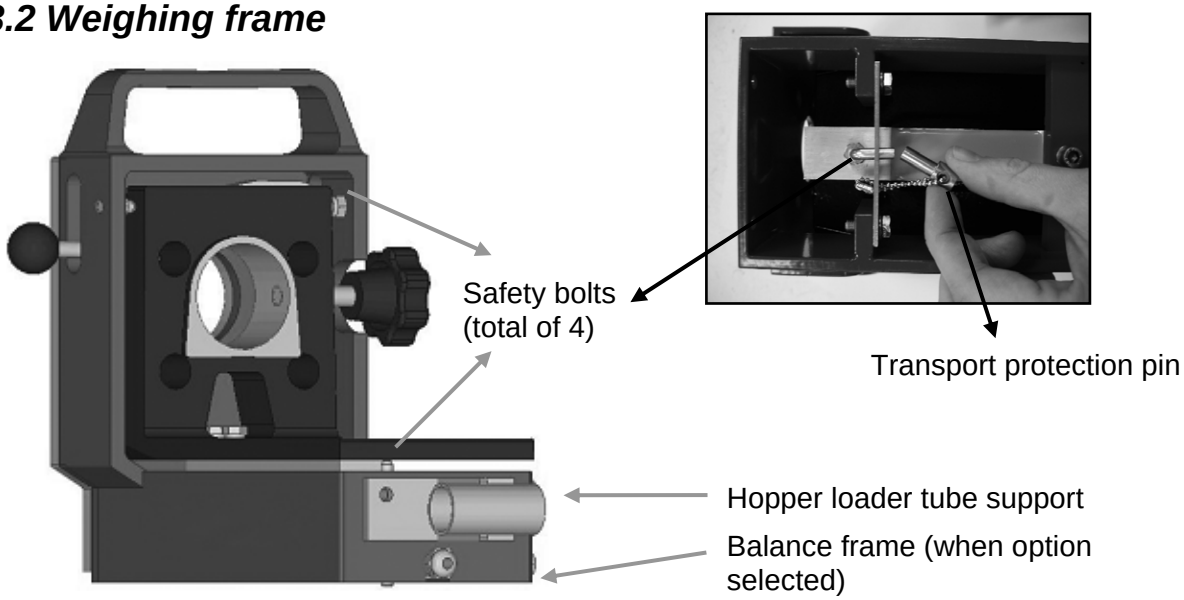
7 TrueFeed load frame

8 Slide frame (optional)

9 Slide locking bolt
(locking the slide-out position)
Only supplied together with the optional slide mechanism

10 Slide locking bar
(locking the slide-in position)
Only supplied together with the optional slide mechanism

3.2 Weighing frame



The black part is the weighing frame.
Do not touch the weighing frame (and dispensing unit) while feeding, it will influence operation.

Do not touch the safety bolts under the weighing platform. These are for overload protection.
There must be space between the safety bolts and the frame.

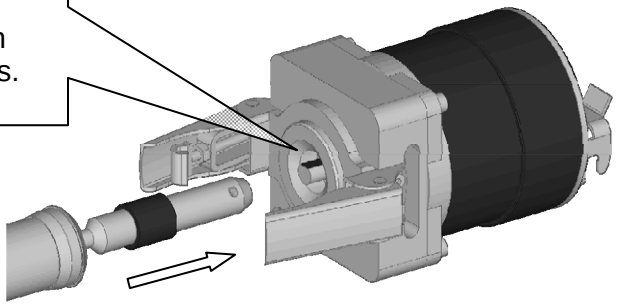
3.3 Motor and feeding system

There two (2) feeding systems, the dispensing cylinder and the feed screw.
(See Chapter 5 for more information)

The serial number of the motor can be found on the backside of the motor.

Motor shaft:
The motor shaft is equipped with one flat side which fits precisely in the shaft of the dispensing cylinder.

To connect the dispensing cylinder, place it on the motor shaft while turning it to find the flat side, then push the dispensing cylinder completely backwards.



4. Metering principle

The Dispensing cylinder® of the TrueFeed is combined with a very precise adjustable stepper motor ensuring that the additive output is accurate and consistent. The throat adapter (a mixing chamber) is designed to blend the main material and the additive homogeneously. Conair supplies a large range of machine throat adaptors that make a perfect fit to your injection molding machine or extruder. The most common mounting of the throat adaptor is between the production machine and the machine hopper. In the figure below, a cross section of the NST40 throat adaptor can be seen.

Standard throat adaptor

During operation, the virgin material runs from the machine hopper through the throat adaptor into the machine. Inside the throat adaptor the virgin material flow is divided into two streams by the cover plate. In the space below the cover plate, the rotating cylinder is feeding additive.

Additive is added directly into the center of the virgin material flow, just before it enters the production machine. This is a great advantage over metering devices that use batch pre-mixing; because pre-mixing can actually cause material separation. Separation of material results in an irregular additive flow into the production machine.

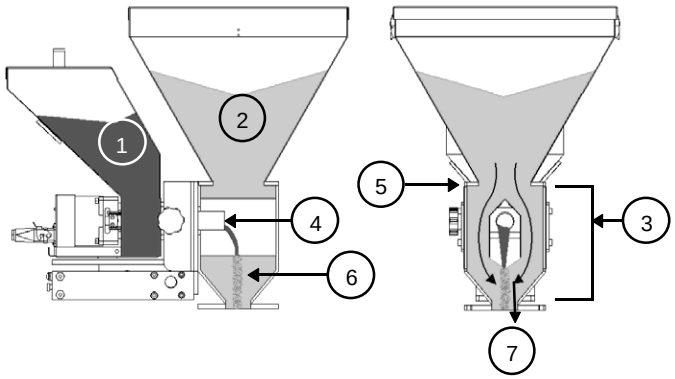


Fig. 3

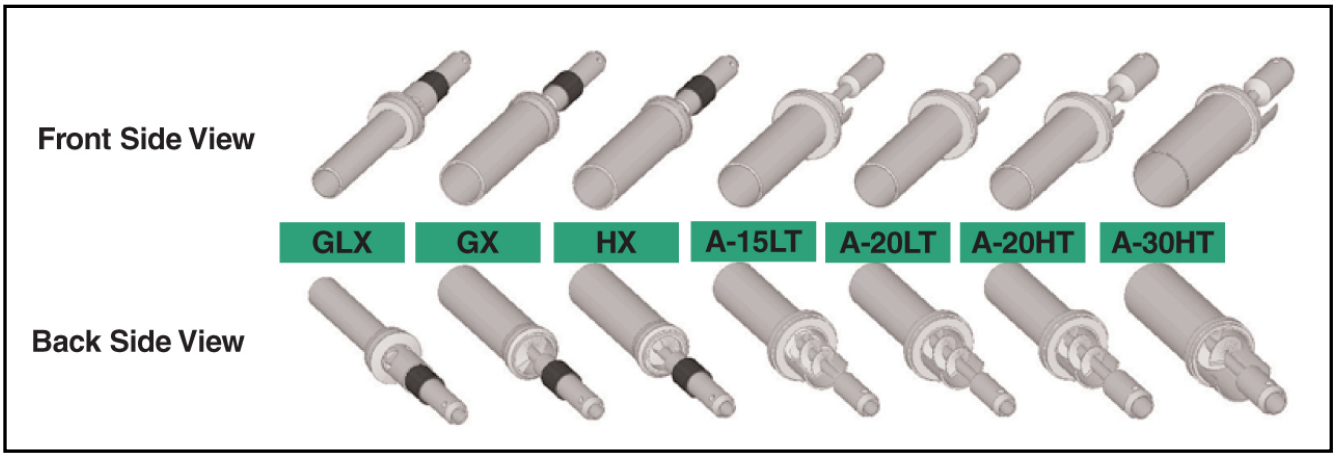
1. Color 2. Virgin material 3. Throat adaptor 4. Dispensing cylinder
5. Cover plate 6. Mixing zone 7. To production machine

5. Feeding systems / Capacities

Depending on the application, a different feeding system may be required. Use the table below to roughly determine the best system for your application. For more detailed information contact a Conair representative.

Feeding system	Pellet material	Regrind / hard-to-flow material	Feed rate† gram/sec	Feed rate† kg/hr	Feed rate† lb/hr
GLX	Yes	No	0.01 to 1.1	0.05 to 4.1	0.11 to 8.9
GX	Yes	No	0.1 to 5.0	0.5 to 12.6	1.11 to 28.0
HX‡	No	No	0.007 to 0.4	0.03 to 1.3	0.56 to 2.78
A-15LT	Yes	No	0.2 to 5.0	0.5 to 12.6	1.11 to 28.0
A-20LT	Yes	No	0.4 to 14.0	1.3 to 50.4	2.78 to 112.0
A-20HT*	Yes	Yes	0.4 to 14.0	1.3 to 50.4	2.78 to 112.0
A-30HT*	Yes	Yes	1.4 to 35.0	5.0 to 126	11.1 to 280.0

* Used for regrind and irregular shaped materials. † Feed rates are based on materials with a bulk density of 35 lb/ft³. ‡ For granular/free-flowing powder.

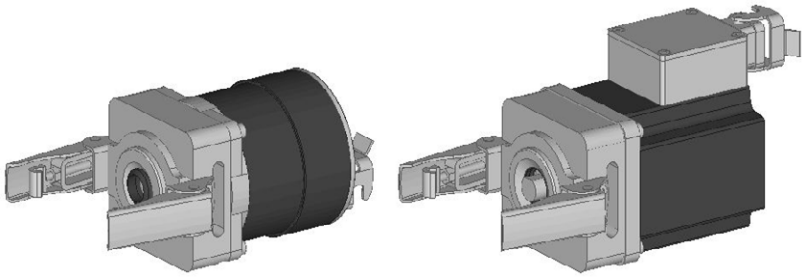


Which type of feeding system do I need with which throat adaptor?
The last 3 numbers are related to the length of the feeding system.

TYPE	CODE FOR STANDARD THROAT ADAPTOR	CODE FOR WATER-COOLED THROAT ADAPTOR
GLX	GLX	GLXC
GX	GX	GXC
HX	HX	HXC
A15LT	A15	A15C
A20LT	A20	A20C
A20HT	A20HT	A20HTC
A30HT	A30	A30C

NOTE: The “C” suffix for the water-cooled throat adapter relates to a longer dispensing cylinder.

All Conair TrueFeed feeders are equipped with the 2A (LT) stepper motor as standard. In case you are using an A30 feed auger, the 4.5A (HT) stepper motor will be supplied. The A20 auger can also be connected to the HT motor.



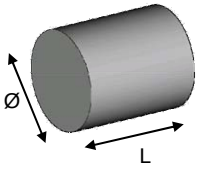
2A (LT) Stepper motor 4.5A (HT) Stepper motor

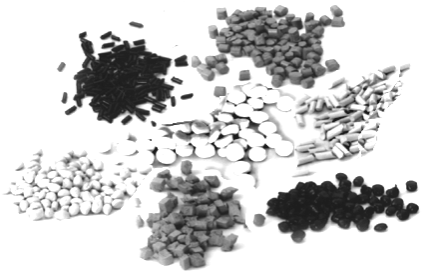
ⓘ Do not select the HT setting in the control if a LT motor is connected. This will damage the motor.
If a LT motor is selected and a HT motor is connected, there will be less motor torque which can influence the feeding of additive.

The control of the TrueFeed makes a distinction between two groups of materials, normal granules and micro-granules. To determine the type of material in your application use the description below.

Material types

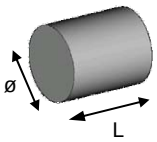
Normal Granules: (NG) 3

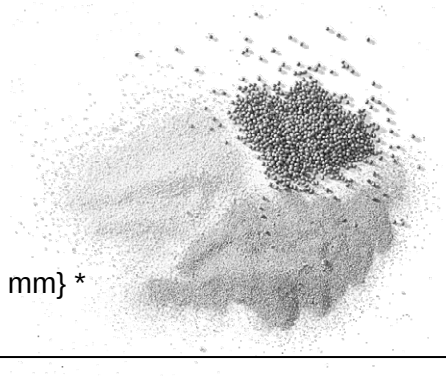




ø < 0.2 in. {4 mm} L < 0.2 in. {4 mm} *

Micro / Mini Granules: (MG)





The term Micro/Mini Granules also includes free flowing powder.

ø < 0.1 in. {2.5 mm} L < 0.1 in. {3 mm} *

* For other sizes contact a Conair representative.

The actual capacity of the feeding system depends on:

- The volume weight of the material *(bulk density)*
- The specific weight of the material *(specific density)*
- The granular shape of the material
- The granule size
- The surface structure of the material

ⓘ Granular material can be normal or micro. The granular material or powder material must be free flowing, non-static and not sticky.

6. Installation

6.1 Transport

To protect the TrueFeed against damage during transport, the unit is packed in a cardboard box filled with foam. Delivery terms are FOB Franklin, PA. The buyer is responsible for the transport. Conair cannot be held liable for any damage that may occur during transportation.

6.2 Receipt

Inspect the unit thoroughly upon receipt. Pass any remarks to the local agent or Conair within eight days from receipt of goods.

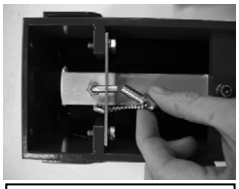
6.3 Mechanical installation

Most mechanical parts are pre-assembled, making installation quick and simple.

1. When installing the main material hopper (not included with feeder purchase) on top of the throat adaptor, the **top flange** of the NST40 throat adaptor needs to be drilled to match. The lid of the throat adaptor can be removed for easy machining.

2. -Install the throat adaptor directly on top of the inlet of the production machine.
   -Install the throat adaptor at a **90-degree** angle to the machine barrel. This will optimize the feeding accuracy in relation to vibrations of the production machine.
   -Ensure that the entire unit is mounted **horizontally level** and fixed securely.
   -Assure proper grounding to control cabinet, throat adaptor and feeder.

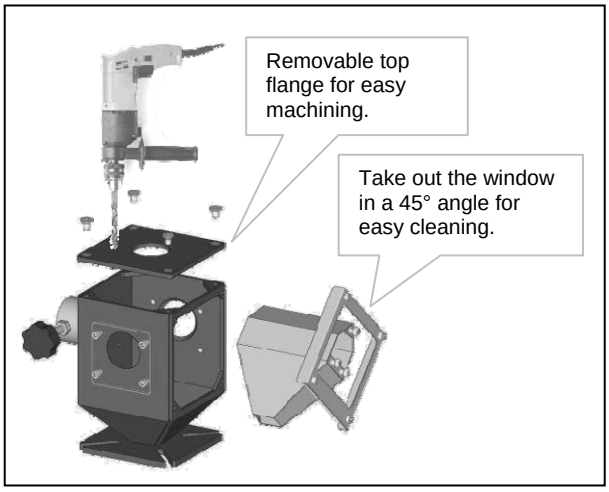
3. Remove the transport protection pin (at the bottom of the load cell frame) before mounting the **hopper assembly**.
   This is just a pin on a flexible chain; do not remove the stainless steel plate!

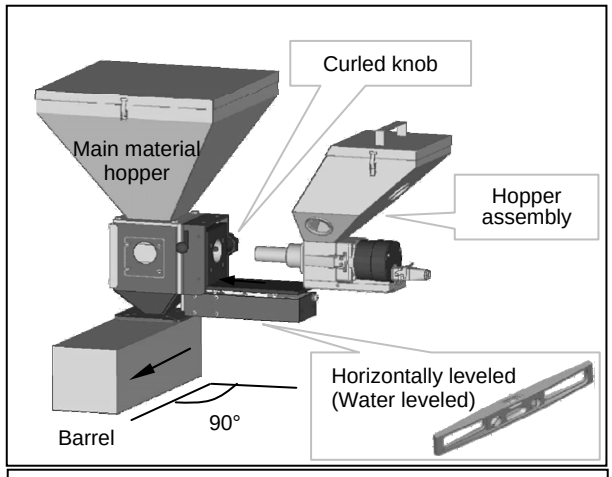


Transport protection pin

4. Connect the **hopper assembly** to the throat adaptor by turning the **curled knob** clockwise. Ensure that the curled knob is tightened firmly.

5. Mount the control in a vibration free area and away from high temperatures.

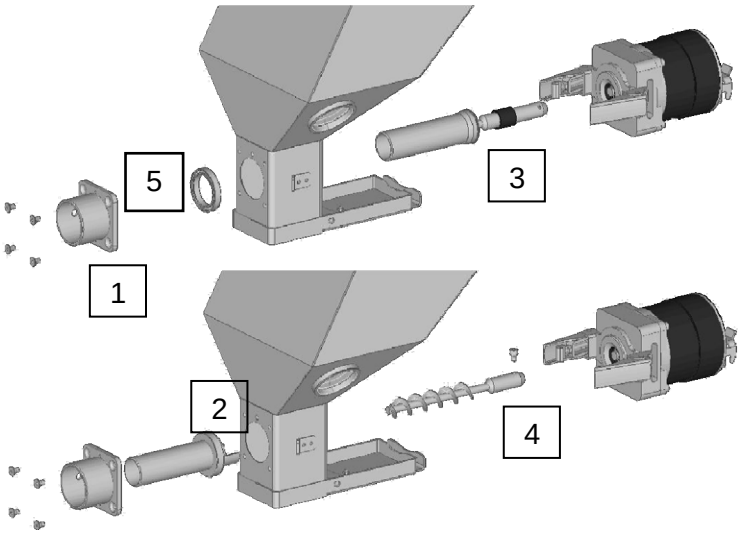




Install the throat adapter at a 90-degree angle to the machine barrel. As shown in the picture above.

6.4 Changing from dispensing cylinder to feed screw

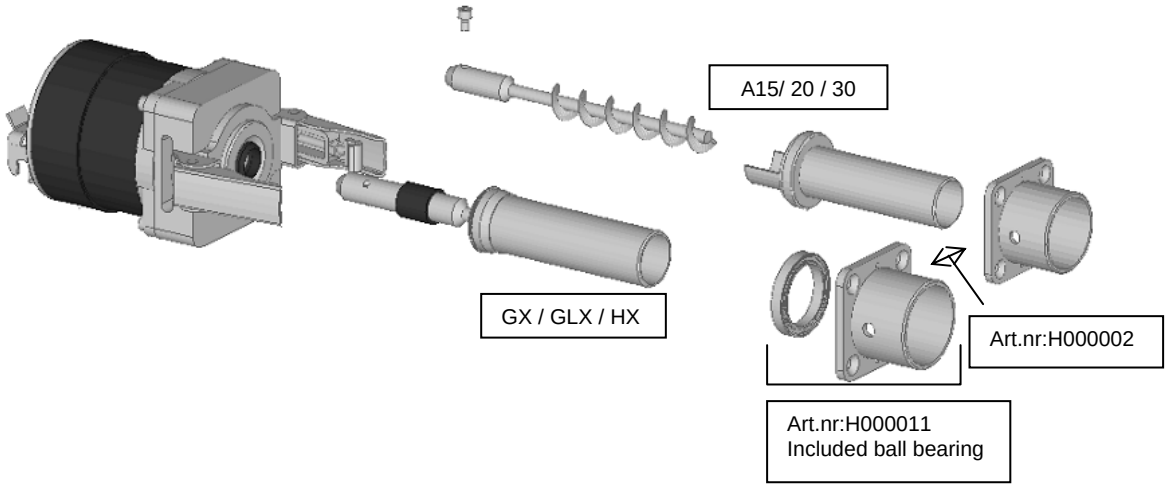
In relation to the maximum capacity of the dispensing cylinder, it may be necessary to change from the selected dispensing cylinder to a feed auger. The feed auger system consists of a rotating auger in a **non**-rotating tube.



To install the feed auger:

1. Detach the motor quick release clamps and remove the motor from the hopper.
2. Dismount the throat adaptor connection flange (1) by removing the four socket-head screws.
3. When using a dispensing cylinder, the throat adaptor connection flange (1) is equipped with a ball bearing (5). When using an auger screw system the ball bearing must be removed. The metal ring (2) which is fixed on the feed screw tube fits directly on the throat adaptor connection flange.
4. Remove the dispensing cylinder (3) and mount the screw (4) with the M5 bolt.
5. Replace the motor and auger by closing the motor quick release clamps.
   The motor and auger can be easily removed for cleaning.

POSSIBLE COMBINATIONS



BALL BEARING

ⓘ To clean the ball bearing, use a dry piece of textile or a smooth, dry toothbrush to remove the dust or moisture and foreign particles that may accumulate.

ⓘ The following points have effect on the lifetime of the ball bearing:
  - o Abrasive materials
  - o Temperature
  - o Dusty / fine powder materials

6.5 Electrical installation

The TrueFeed control is equipped with three (3) connections:

- Main power cable
  ⓘ Before turning on the unit for the first time, ensure the main power voltage being applied is between 80 and 260VAC.
- Input cable
- Motor cable

ⓘ Be aware that the cables will be influenced by external circumstances such as electromagnetic fields!
ⓘ Mount the control on a location that is free of vibrations and excessive heat.

Optional are:

- Alarm flash light, complete with cable
- Compressed air solenoid valve complete with cable (for automatic hopper loading)

APPENDIX B SHOWS THE ELECTRICAL PRINT VIEW WHICH IS EXPLAINED BELOW

1. PROCESSOR BOARD

The processor board is the heart of the control.
The board must be fixed securely on the mainboard.
There is a Mac-address that is labeled on the process board. This is the ID of the networkcard.
This address can also be seen in the startup screen on the TrueFeed control display.

2. EXTERNAL TERMINAL CONNECTION

This connection is used when using an external terminal (Shielded cable max. 32.8 ft {10 m})

3. CONNECTION TO PC OR NETWORK

The Ethernet connection will be used when the TrueFeed is connected to a PC or network. Maximum length of the UTP network cable, type RJ45 (Cat. 5) is 328 ft {100 m} between two network points.

4. INPUTS

Start input

The TrueFeed needs an input signal from the production machine in order to operate.
Three (3) different input signals can be used to control the TrueFeed:

- Potential free start input (dry contact)
- Potential (24 VDC) start input
- Tachometer (0-30 VDC) start input

5. MOTOR

The TrueFeed can control two (2) motor types:

- LT (low torque) standard motor for normal feeding
- HT (high torque) motor for high output feeding

(See Chapter 5 for more details. See Appendix B for wiring diagram and electrical connection information.)

6. OUTPUTS

The TrueFeed has the following outputs available:

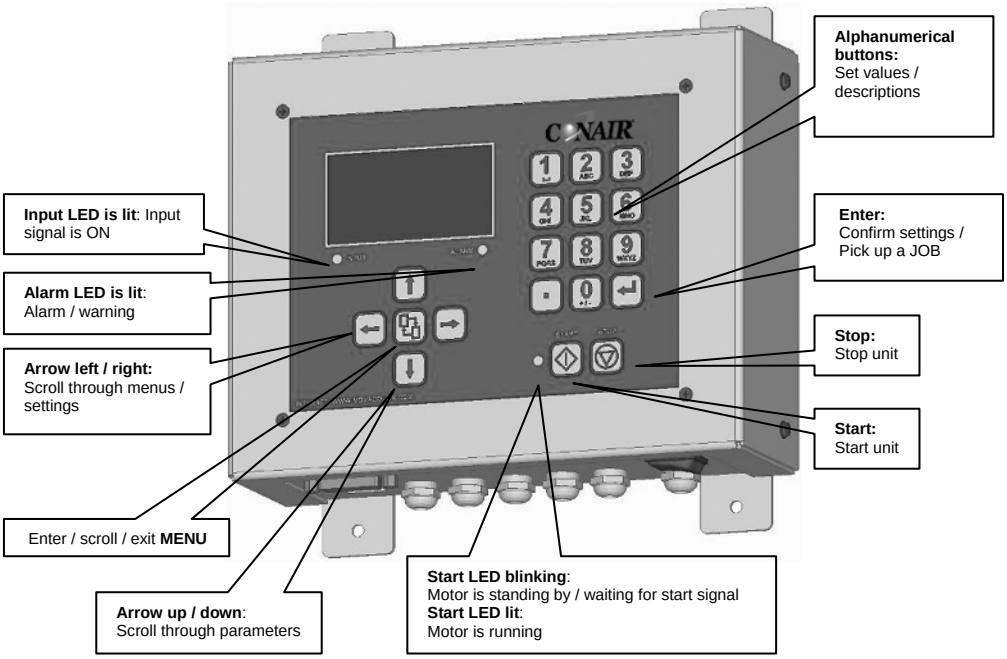
- [clamp 24-25] Valve output for hopper loader, (Solid state 24VDC/0.5 A)
- [clamp 22-23] Warning output (Solid state 24VDC/0.5 A)
- [clamp 26-27] Potential free relay (normally-open) output for alarm (max. 230VAC/30VDC, 5A)
- [clamp 28-29] Potential free relay (normally-open) output for running contact (max. 230VAC/30VDC, 5A). This contact will be used to show that the TrueFeed motor is running. The maximum total output power is 12 Watt (Valve output + alarm output together max. 0.5A) (See Appendix B for wiring diagram and electrical connection information.)

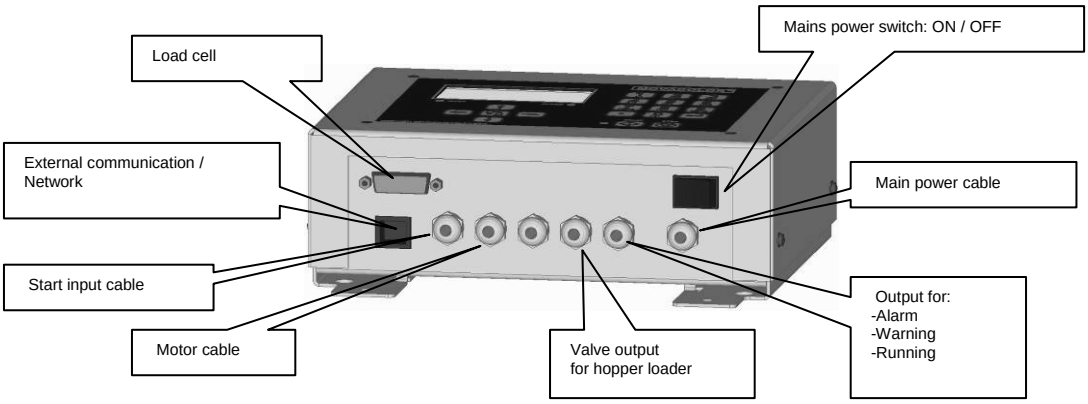
7. POWER SUPPLY

The TrueFeed will operate with a voltage between 80 VAC to 260 VAC, 50 and 60 Hz by an integrated automatic voltage selector.
(See Appendix B for wiring diagram and electrical connection information.)

7. Operation

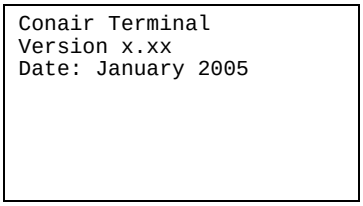
7.1 Navigation



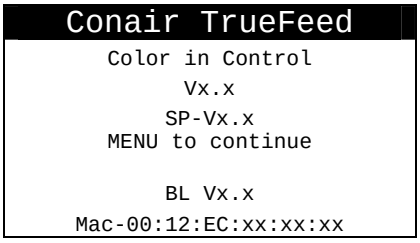


7.2 Start up and login

Immediately after turning on the main power to the TrueFeed, the software versions will be displayed. In the first screen the software version of the terminal will be shown.



After a few seconds the second screen appears for 10 seconds.



Vx.x = User software version Vx.x
SP-Vx.x = Language version Vx.x
(Standard language is English)
(SP means that the additional language is Spanish)
BL Vx.x = Bootloader software (firmware) Vx.x
Mac address = ID address of the network card

The TrueFeed control has three (3) user levels:
1. Operator **2.** Tooling (Supervisor – level 1) **3.** Supervisor (Service – level 2)

The functions which are accessible per user level are shown in the table below.

The Operator level is the lowest level, only the settings for production can be changed. The rest of the settings / menus are removed or locked.

To access a different user level, navigate to the LOGIN menu and enter the corresponding password (4 numerals) and press “Enter”. The passwords for the Tooling and Supervisor user levels can be defined by the supervisor in the CONFIGURATIONS menu.

		USER LEVEL Can be changed in LOGIN menu.		
MENU TITLE:	**FUNCTION:**	**SUPERVISOR** Default code 2222	**TOOLING** Default code 1111	**OPERATOR** Default code 0000
[LOGIN]	To enter the different user levels.	**YES**	**YES**	**YES**
[CONFIGURATIONS]	To configure the feeding system.	**YES**	NO	NO
[PRODUCTION]	To adjust the production settings. *In OPERATOR level jobs and materials are read-only.	**YES**	**YES**	**YES***
[FILES]	To look for, rename or delete jobs and curves.	**YES**	NO	NO
[HOPPER LOADER]	To adjust the hopper loader settings, only visible when a hopper loader is selected.	**YES**	**YES**	**YES**
[CALIBRATION]	To make material calibrations, only visible when control mode is set to GRAVI (Gravimetric).	**YES**	**YES**	NO
[LOAD CELL]	To calibrate the load cell.	**YES**	NO	NO
[WEIGHT CHECK]	To check the hopper or object weight.	**YES**	**YES**	NO
[CONSUMPTION]	Viewing of the total quantity of material dosed by the TrueFeed.	**YES**	**YES**	NO
[ALARMS]	Viewing of the alarm history *In TOOLING level the alarm CONFIGURATIONS is removed.	**YES**	**YES***	NO
[EVENT LOG]	The history of events or settings will be logged in this menu.	**YES**	NO	NO

ⓘ Recommended to note the passwords

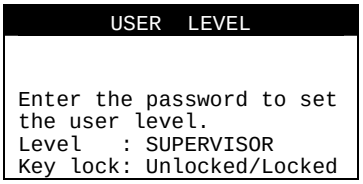
If you forgot your supervisor password, contact Conair Service 1-800-458-1960.
If the wrong password has been entered, the user level will automatically be set to Operator level.

7.3 Keyboard lock

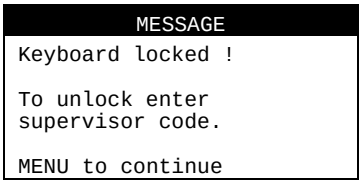
The keyboard lock function:

- Is only accessible at the LOGIN menu.
- Can only be activated and deactivated with the SUPERVISOR login password.
- Is only fully functional in OPERATOR and TOOLING user levels.
  For example: if the “Start user” setting is configured to “Supervisor”, the keyboard lock is deactivated as soon as the control is turned OFF and ON.

The following screen will appear when the LOGIN menu is accessed:



Press → or ← to select “*Locked”* or “*Unlocked”* and press “Enter”. When “*Locked”* is selected the unit will automatically be set to OPERATOR user level.



This screen will appear when a user tries to change any setting while the keyboard is locked. To unlock the keyboard, the Supervisor password must be entered at the LOGIN menu.

When the keyboard lock is ON, it is still possible to…

- Shift between the LOGIN, PRODUCTION and HOPPER LOADER menus.
- To START and STOP the feeder.

See Chapter 7.2 for start-up and login information.

7.4 CONFIGURATIONS

For the initial setup of the TrueFeed, the control must be configured from the CONFIGURATIONS menu. Depending on the CONFIGURATIONS, some settings will be removed because they are not relevant.
ⓘ Highlighted Parameters are factory settings.

Language : ENG / SP
Motor type : LT / HT
Cylinder type : GX / GLX / HX / A20 / A30 (for A15 select GX cylinder type)
Material type : NORMAL / MICRO
Cal dev. : 5.0 %
Control mode : GRAVI / RPM
Prod. Mode : INJ / EXT
Input mode : Timer / Relay / Tachometer
└ **Input filter** : (1 -32)
Fill. System : NO / ME / MV / EX
└ **EX HH level** : 3500 g. (7.7 lb)
└ **EX H level** : 2500 g. (5.5 lb)
└ **Filling start** : 800 g. (1.7 lb)
Hopper empty : 700 g. (1.5 lb)
Deviation alarm : 25 %
Jobs enabled : NO / YES
Auto start : NO / YES
Master reset : NONE / ALARM / MATER / JOBS / ALL
IP : xxx . xxx . xxx . xxx (For example: 192.168.001.001)
Name : xxxxxxxxxxxxxx
Start user : Operator / Tooling / Supervisor
Tooling passw. : xxxx 1111
Supervisor passw. : xxxx 2222
Conversion : Metric / Imp / kg/h
Full scale : xx.xx kg
Modbus unit : 1 - 231
Date : (dd / mm / yy)
Time : (hh / mm / ss)

***CONFIGURATIONS:* Language**
Standard language is English. Alternate languages are available upon request.

***CONFIGURATIONS:* Motor type**
LT is Low Torque motor and HT is High Torque motor (See Chapter 5 for more information)
ⓘ Do not select HT motor if a LT motor is installed.

***CONFIGURATIONS:* Cylinder type**
Type of dispensing cylinder / feed auger (See Chapter 5 for more information)

***CONFIGURATIONS:* Material type**
Type of material: normal granules (NORMAL) and micro-granules (MICRO).
(see chapter 5 for more information)

***CONFIGURATIONS:* Cal dev.**
The maximum allowed deviation from the Calibration Setpoint can be set with this parameter. (See Chapter 7.6 for more information)

***CONFIGURATIONS:* Control mode**
(GRAVI) Gravimetric mode or (RPM) Rotating mode

- **Gravimetric mode (GRAVI)** is set as default and functions on the basis of loss-in-weight principle. The output is measured and regulated continuously by controlling the motor speed.
- **Volumetric mode (RPM)** can be used if no automatic feedback of the weight is required. The weighing will not function in this mode and the automatic hopper loader function will not operate.

***CONFIGURATIONS:* Prod. mode**
Production mode
Type of processing machine the TrueFeed is mounted upon. (EXT) extruder or (INJ) injection molding

***CONFIGURATIONS:* Input mode**
Type of input signal. Relay, Timer or Tachometer
Timer mode is the standard setting for Injection molding.

***CONFIGURATIONS:* Input filter**
The setting "input filter" becomes visible when Relay Input mode is selected in INJ mode.
In Relay Input mode the length of feeding time is measured automatically from the incoming input signal. The Input Filter calculates the average feeding time of the set number of shots (3-32)
The calculated average time is used as consistent feeding time. The default Input Filter setting is 3.

	EXT		**INJ**	
timer			x	x
relay	x	x	x	
tachometer	x	x		
	GRAVI	RPM	GRAVI	RPM

ⓘ Input mode is not visible in RPM Production mode. (Timer mode is used automatically)

ⓘ For INJ mode in Timer mode, the start pulse should be a minimum of 0.2 seconds.
For INJ mode in Relay mode, the start signal should be as long as the feeding time.

If INJ mode in Relay mode is selected, the TrueFeed will follow the machine relay time. The control will filter out small changes so that the regulation is not affected. Large changes will be followed.
The TrueFeed display will show the actual machine relay time.

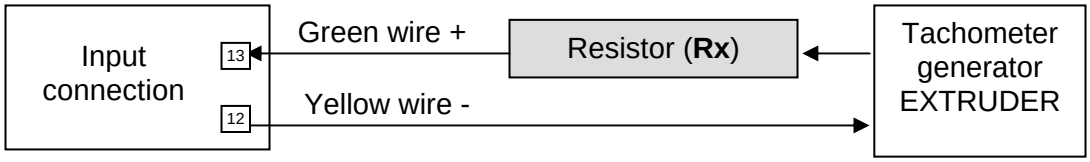
Input (start) signal
The TrueFeed needs an input signal from the production machine in order to function properly.
Three different types of input signals can be used to control the TrueFeed. See Appendix B for more information.

1.) *A potential free relay contact.*
Use the white wire (14) and brown wire (15) for the potential free contact.

2.) *A relay signal 24 Volt DC*.*
In case of a powered relay signal connect the white wire (14) to the +24 VDC and the yellow wire (12) to the 0 VDC.
* Note potential contact
Guaranteed OFF: 0-8VDC
Guaranteed ON: 18-30VDC

3.) *A tachometer signal up to 30 Volt DC.*
This is used when the TrueFeed needs to be connected to an extruder that has a tachometer generator that produces a voltage linear to the extruder speed. When using a tachometer generator signal, make a connection between the white wire terminal (14) and brown wire terminal (15), it will function as a start signal. Connect the positive VDC (green) wire from the tachometer to terminal (13) and the negative (yellow) wire to terminal (12).

The maximum voltage that can be applied to the TrueFeed is 30 VDC. The tachometer voltage must be reduced to 30 VDC. If the tachometer generator has a higher voltage output than 30 VDC at the maximum extruder output capacity, it must be reduced. See the diagram below.

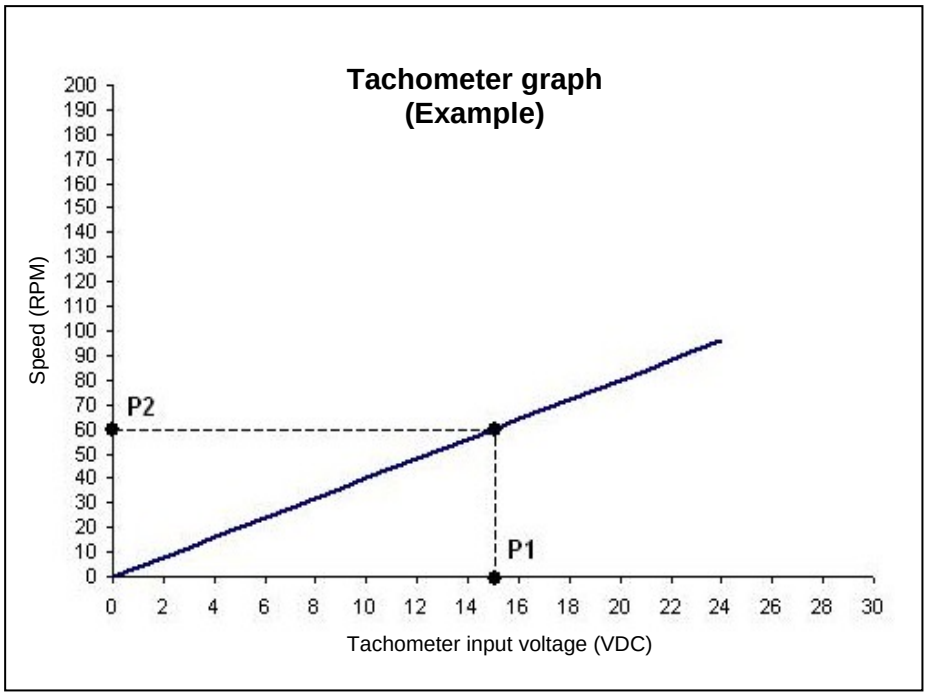


Rx (**kilo-Ohm**) = (2,684 x (Max. tacho output VDC – 5)) -66

If the extruder stops when it is connected to the TrueFeed, an isolated signal converter is required. Contact a Conair representative for more information.

Tachometer function
The tachometer function is only available in Extrusion mode. The feeding rate is required to automatically adjust to the extruder's speed. In Tachometer mode, an input voltage is linked to a feed speed setting. If the extruder speed changes, the tachometer input voltage and speed of the feeding will also change.

A linear correlation between the extruder's speed (tachometer input signal) and the required TrueFeed speed is displayed in the graph below.



The tachometer function can be set in the PRODUCTION screen.
The tachometer setting can be adjusted automatically or manually.

Max tachometer: 0.0V
Set tachometer: NO / YES
ⓘ Highlighted Parameters are factory settings.

Manual:
Fill in the voltage the tachometer produced by the tachometer generator at maximum extruder speed.

Automatic:
Let the extruder run and select Set tachometer: **YES**.
The tachometer voltage (P1) will be taken over automatically and is linked to the set motor speed (P2) (in RPM mode) or calculated motor speed (in GRAVI mode)

During production, the motor speed (P2) can be changed. The new speed is linked to the previous stored voltage and the graph will change accordingly.

During production, the voltage (P1) can be adjusted to the current tachometer input voltage (manually or automatically) as shown above. The new voltage is linked to the previous stored speed and the graph will change accordingly.

-The maximum voltage that can be applied to the TrueFeed is 30 VDC.
-The tachometer signal must be a clear signal. Any failure in the voltage signal will result in feeding variations.

***CONFIGURATIONS:* Fill. System**
Filling system, NO (None), ME, MV or EX (See Chapter 7.10)

***CONFIGURATIONS:* Filling start**
Function: When the control detects that the hopper is running empty, the filling system is activated.
The filling system will start loading when the weight in the hopper is 1.7 lb {800 g} (default) or less.
The default value can be changed manually if necessary (depending on the material properties).
Also with an EX hopper selected, this is the weight level for opening the knife gate valve to fill the hopper.
ⓘ Only visible when a filling system is installed and selected.

***CONFIGURATIONS:* EX-H level**
The filling knife gate valve will close if the weight in the hopper is 5.5 lb {2500 g} (default) or more.
ⓘ Only visible if EX (External / foreign) hopper loader is installed and selected.

***CONFIGURATIONS:* EX-HH level**
HH level is High level warning. If the weight in the hopper reaches 6.6 lb {3000 g} (default) or more a warning will activate.
ⓘ Only visible if EX (External / foreign) hopper loader is installed and selected.

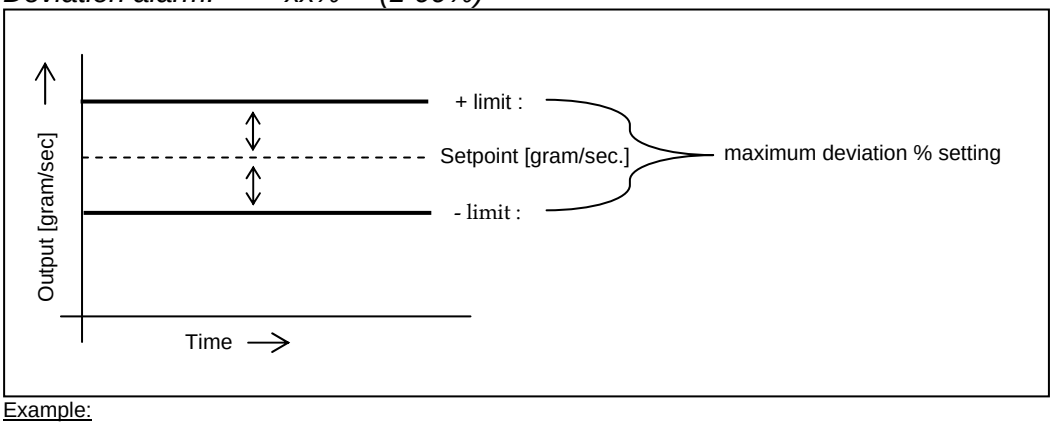
***CONFIGURATIONS:* Hopper empty**
The system will display a “Low hopper level” message if there is less then 1.5 lb {700 g} (default) of material in the hopper. For this system to work correctly it is required that a load cell calibration is performed with an empty hopper and the hopper lid in place. This system will always be active.
The default value can be changed manually if necessary (depending on the material properties).
See Chapter 7.12 for instructions on how to set this message to alarm or warning.

***CONFIGURATIONS*: Deviation alarm**
Setting for the “Maximum deviation exceeded” message.

The TrueFeed automatically adjusts its motor speed to the desired setpoint. The control is able to detect and alarm when the setpoint is not reached within a set percentage. If after the normal performed speed adjustments, the setpoint is consistently not reached, the control will activate an alarm signal and a message will be displayed in the TrueFeed’s control.

If the setpoint it not reached within the set percentage:
- There is a partial or complete blockage of sticky or hard flowing material.
- Inaccurate feeding due to the material not being uniform in size.
- Disturbance of the weight signal by mechanical blocking of the TrueFeed loadframe.

The Maximum deviation setting can be set in the CONFIGURATIONS menu:
Deviation alarm: xx% (1-99%)



Example:
The Deviation alarm setting in the CONFIGURATIONS menu is set to 25% as default.
The setpoint (color set) is set to : 2.2 lb/sec {1,000 g/sec}
-the MAXIMUM limit value will be : 2.7 lb/sec {1,250 g/sec}
-the MINIMUM limit value will be : 1.6 lb/sec {750 g/sec}
When the maximum deviation message (Error 01, page 34) appears in the display of the control, it shows the measured deviation in percentage of the setpoint.

***CONFIGURATIONS:* Jobs enabled**
Enable/disable production job functionality (See Chapter 7.9)

***CONFIGURATIONS:* Auto start**
Enable/disable auto startup after a voltage dip or when main power has been switched OFF.
When enabled, the unit will continue feeding automatically after a voltage dip or when main power has been switched OFF.

***CONFIGURATIONS:* Master reset**
Reset alarm history (ALARMS). All alarm/warning messages saved in the alarm history will be removed.
Reset material calibrations (MATER.) All material calibrations will be removed.
Reset production jobs (JOBS). All Jobs will be removed.
Reset these three together (ALL). Alarm history, material calibrations and jobs will be removed.

***CONFIGURATIONS:* IP**
The IP-address is used within a network environment (TCP/IP protocol). (For example 192.168.001.001)
When a TrueFeed is part of a network, the control must have an IP-address for identification.
ⓘ This IP-address has to correspond with the IP-address of your computer. Ask your network administrator for a unique address.

***CONFIGURATIONS:* Name**
Provide a name or figures for individual identification (for use within a network).
For example, the name of the machine the TrueFeed is mounted upon.

***CONFIGURATIONS:* Start user (Sign-in)**
User level to start up with, when switching on the control's main power.
Operator, Tooling or Supervisor.

***CONFIGURATIONS:* Tooling password**
Password for Tooling user level, 4 numerals, default: 1111

***CONFIGURATIONS:* Supervisor password**
Password for Supervisor user level 4 numerals, default: 2222

***CONFIGURATIONS:* Conversion**
Selection of Units: Metric = European [gr/s]
Imperial = US [lbs/hr]
Kg/h = In extrusion mode the capacity will be shown in kg/h instead of gr/s

***CONFIGURATIONS:* Full scale**
Selected load cell will be shown (read-only)

***CONFIGURATIONS:* Modbus unit**
If the control is used within a Modbus network, the unique identity can be entered here (1-231)

***CONFIGURATIONS:* Date**
Actual date (dd / mm / yy)

***CONFIGURATIONS:* Time**
Actual time (hh / mm / ss)

ⓘDate and time will be stored for a minimum of 1500 hours when the control is switched OFF.

7.5 Load cell calibration

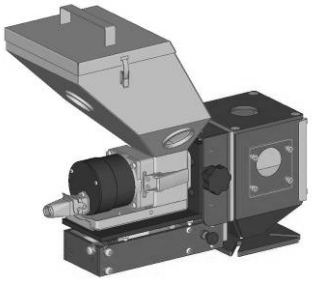
Two types of calibrations are available for the TrueFeed, depending on the selection made in CONFIGURATIONS:

1. **Automatic -** The advantage of automatic calibration over manual calibration is that the automatic calibration is self-calibrating and the probability of failures will be reduced. Also, the accuracy is higher with changes of output because a complete material curve will be produced.

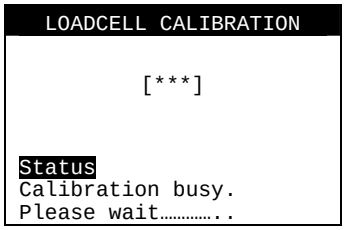
2. **Manual** - Running in RPM mode (external scale is required)

When using a TrueFeed for the first time, a **load cell calibration** must be performed:

- The unit must be mounted horizontally (water leveled)
- Avoid vibrations during the load cell calibration. This will effect the calibration.
- Do not touch the unit during load cell calibration.
- When using an optional slide frame the unit must be slid in against the throat adaptor and secured.

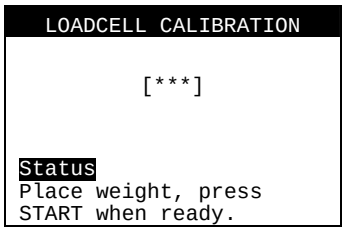


- Be sure that the load cell is connected to the control
- Navigate to the LOAD CELL menu
- In this menu it is possible to calibrate the load cell of TrueFeed (a 1.1 lb {500 g}. calibration weight is required)
- Select “YES” to start the load cell calibration



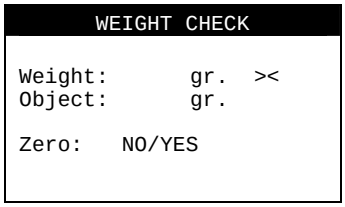
[***] = Progress

- After a few minutes the following screen appears:



Place the calibration weight (1.1 lb {500 g}) on the hopper and press the “START” button.

- After approximately one (1) minute the load cell calibration will be complete, press the “MENU” button to continue.
- To check if the load cell calibration was correct, navigate to the WEIGHT CHECK menu.



><: Standstill sign. When the vibrations are too large, this sign disappears!
Weight: Actual weight on the weighing scale (gram)
Object: Object weight (gram)
Zero: Zero YES / NO. Reset the object weight.

- Zero the object weight
- Place the 1.1 lb {500 g} calibration weight on the hopper
- If the object weight is not corresponding with the weight readout in the control's display, perform another load cell calibration.

7.6 Material pre-calibration

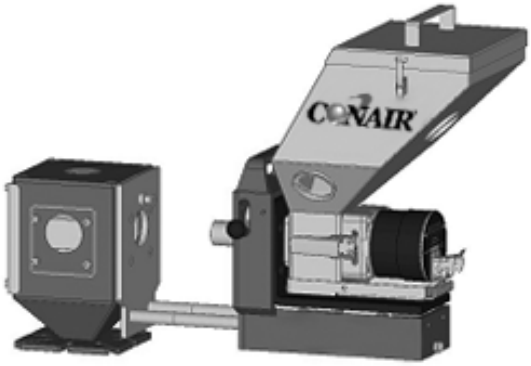
The TrueFeed can be started in two ways:

1) **<u>Without</u> pre-calibration** of material.
   After pressing the “START” button the TrueFeed starts feeding at a speed that is based on default curves which are pre-programmed within the control. After start-up, the unit continues with self-calibrating to setpoint.

2) **<u>With</u> pre-calibration** of material (OFF-LINE).
   After pressing the “START” button the TrueFeed starts feeding at a speed that is based on material calibrations made by the user that are stored within the control. After start-up, the unit continues with fine-tuning to setpoint.

What is the function of a material Pre-calibration?
With a pre-calibration it is possible to calibrate the unit before production begins, reducing the time for the TrueFeed to be within tolerance. The TrueFeed is a gravimetric/loss-in-weight feeder. When starting up the feeder for a new production run, there is no direct information available about the loss in weight. Starting the unit at a speed that is already near to the setpoint will achieve quicker regulation. The correct RPM at the start of the feeder can be determined automatically with a pre-calibration.

The pre-calibration can performed in two (2) ways:



1) Unit with the optional slide frame:
   Slide the frame with unit backwards till the “click”

2) Unit without optional slide mechanism:
   Remove the feeder and place it on the frame as shown

- It is important that during calibration, the feeder is mounted fixed, horizontally and vibration free.
- Before starting a pre-material calibration, ensure that the hopper is filled with material.
- Ensure that the load cell cable is connected to the TrueFeed control.

Following parameters will be stored with the Material calibration, depending on the CONFIGURATIONS:

- CONFIGURATIONS parameters: Cylinder type : Type of dispensing cylinder or feed screw
  Material Type : Normal or micro-granules
- PRODUCTION parameters: Shotwth. : Shot weight
  color% : Color amount (%)
  dos. time : *Feeding time (sec)
  Ext. cap. : Extruder capacity (kg/h)
- CALIBRATION parameters: Material name : Name of calibrated material

  * Screw recovery time for an injection molding machine.

How do I make a material calibration?

- Navigate to the CALIBRATION menu.
- Enter the material name and your production parameters.
- Start calibrating. The following screen appears:

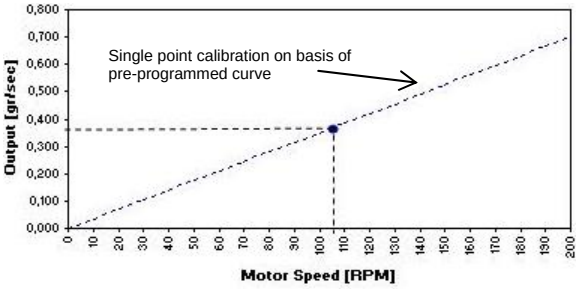
```
        CALIBRATION
       [TESTING BUSY]
          [*****]

Set    : 1,000 gr/s
Actual : 0,945 gr/s
Stop & Store : YES/NO
```

- The calibration will take approximately three (3) minutes but can take longer depending on the material used and production parameters.
  It is possible to stop the calibration to refill the hopper, for example.
  To continue, select “YES” and press “Enter”. To stop, select “NO” and press “Enter”.
- The calibration will automatically finish and save after the setpoint is within the set calibration deviation (Cal dev: default = 5%) set in the CONFIGURATIONS menu. (See Chapter 7.4)
- The control will automatically go to the PRODUCTION menu and the stored calibration will be selected.

ⓘ Stored material curves have a ***** after the filename.

During the calibration the TrueFeed is adjusting to its setpoint. When the setpoint is reached, the calibration will be saved. A complete material calibration curve is made on the basis of default pre-programmed curves.

Material Calibration



You can also save the actual material calibration during a running production process.
This function is called “**Save data Function”.** (See Chapter 7.8 for more information)

How can I select a calibrated material?

When one or more material calibrations are made, one can be selected as follows:

- Navigate to the PRODUCTION menu.
- Use the cursor to go to Material.
- Press the “Enter” button for two (2) seconds. A list will appear with stored material calibrations
- Select one with the arrow buttons and press “Enter”.

If the material calibration made is not in the list, enter the first letters of the calibration name and press “Enter”. Now a filtered list appears. To go back to the main list, fill in the selection with spaces and press “Enter”.
It is also possible to fill in the material description immediately in the PRODUCTION menu and press “Enter”. The message **“Material not found, select new material”** appears when a false material is filled in. To clear the description, fill in the selection with spaces or select an empty calibration out of the list and press “Enter”.

How can I delete or rename a calibrated material?

To delete one or more material see Chapter 7.13.
To delete all Materials, select master reset MATERIAL in the CONFIGURATIONS menu and press “Enter”.

7.7 Production

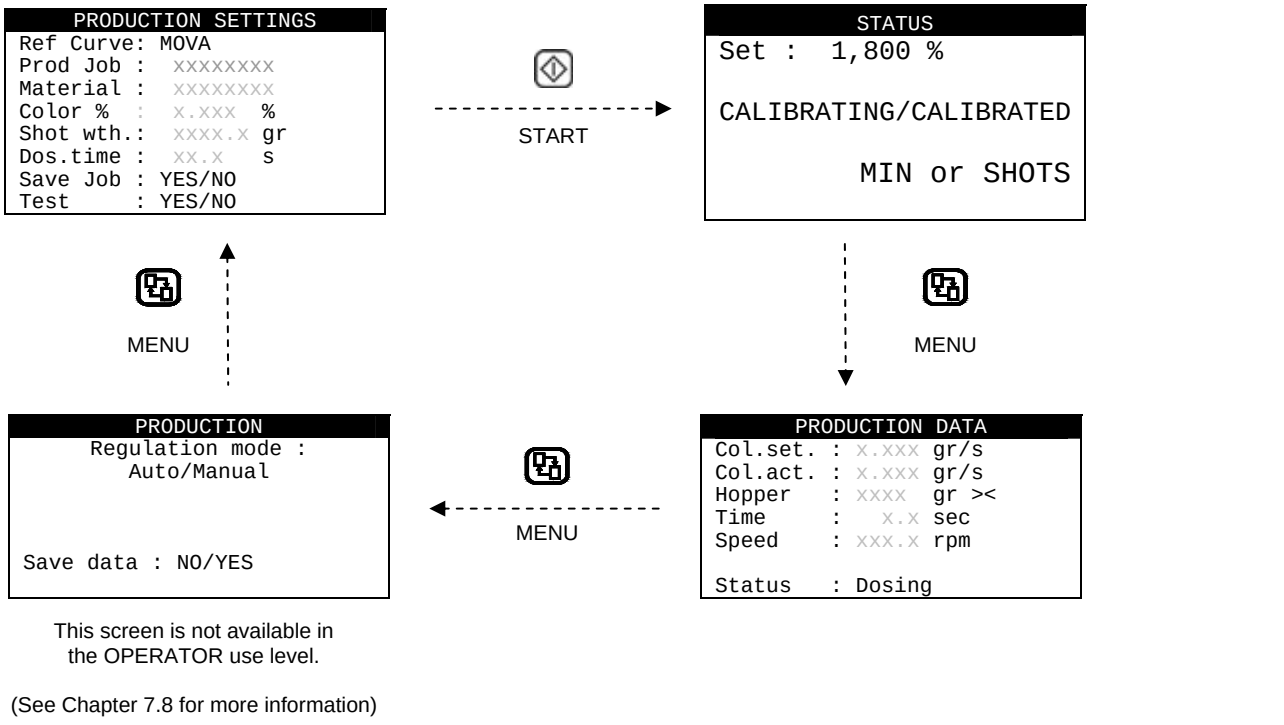
ⓘ The rotation direction of the feeding at the front view must be to the right (Clockwise)

Production (Motor On/Off)
Press the “Start” button to start feeding, a question will be displayed: Fill cylinder? YES/NO.
“YES” means that the dispensing cylinder will be filled before production.
The start LED blinks when the unit is waiting for an input signal.
The unit is feeding if the Start LED is continuously lit.
When the unit is started the actual production data will be shown.
Press the “Stop” button to stop production.

ⓘ Please notice that it is possible that the first feeding(s) are not sufficient, because of the dispensing cylinder is filling with material.

Four levels of production screens:
The TrueFeed will automatically switch to the STATUS screen.

In INJ mode the remaining number of shots will be shown
In EXT mode the remaining production minutes will be shown
Calculated with the actual hopper weight and hopper empty weight



This screen is not available in the OPERATOR use level.

(See Chapter 7.8 for more information)

.

Test function
During a test function, the TrueFeed will dose material with the set feeding time and set/calculated speed.
ⓘ In Extrusion mode the unit will dose for 30 seconds.
To perform a test:

- Navigate to the PRODUCTION menu
- Fill in the production settings
- Use the arrow buttons to go to Test
- Select “YES” and then press “Enter”
- The unit will run with the set parameters.

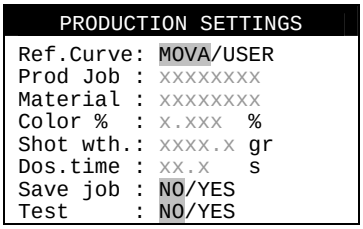
It is possible to stop the test by pressing the “Stop” button .

INJECTION MOLDING

The following parameters can be seen in the Production screen, depending on operation or settings made within the Supervisor user level:

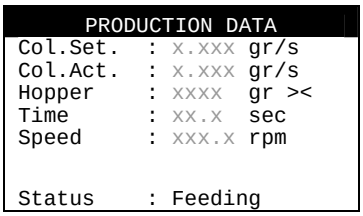
Injection molding / Gravimetric mode

Production Settings



Ref.Curve: Type of reference curve: pre-programmed curve or user-defined curve.
Prod Job : Name of the production Job
Material : Name of material calibration
Color % : Color amount (%)
Shot wth : Shot weight (gr.)
Dos. time : Feeding time (sec.)
ⓘ **Feeding time is only visible in Timer mode**
Save job : Save actual production settings into a job
Test: : Initial production test with set speed and time

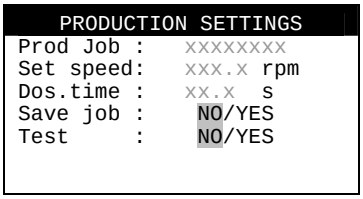
Actual production data



Col.set. : Calculated output (gr/sec)
Col. act. : Actual color output (gr/sec)
ⓘ **Actual color output is only visible after the first automatic RPM adjustment.**
Hopper : Material weight in the hopper
>< : Standstill sign. When the vibrations are too large, this sign disappears!
Time : -Count down of the actual feeding time (sec), when running in TIMER input mode.
-Average feeding time (sec), when running in RELAY input mode.
Speed : Actual motor speed (RPM)
Status : Status of the feeding: Standby / Feeding / Filling

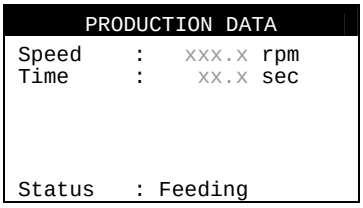
Injection molding / RPM mode

Production Settings



Prod Job : Name of the production Job
Set speed : Set motor speed (RPM)
Dos.time : Actual feed time (sec), measured from relay
Save job : Save production settings into a job
Test: : Initial production test with set speed and time

Actual production data

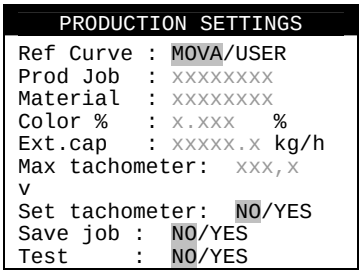


Speed : Actual motor speed (RPM)
Time : Count down of the actual feeding time (sec)
Status : Status of the feeding: Standby / feeding / filling
ⓘ **RPM mode always needs a set feeding time, relay function is not applicable.**

EXTRUSION

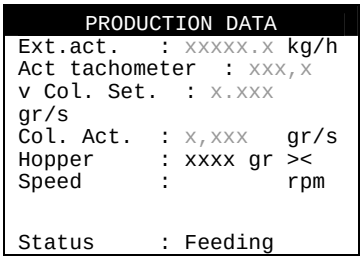
Extrusion / Gravimetric mode

Production Settings



Ref.Curve: Type of reference curve: pre-programmed curve or user-defined curve.
Prod Job : Name of the production Job
Material : Name of material calibration
Color % : Color amount (%)
Ext.cap : Maximum extruder capacity (kg/h)
Max tachometer: Maximum tachometer voltage (v)
ⓘ**Only visible in Tachometer mode**
Set tachometer : Automatic voltage take over from tachometer generator
ⓘ**Only visible in Tachometer mode**
Save job : Save production settings into a job
Test: : Initial production test with set speed for 30 seconds.

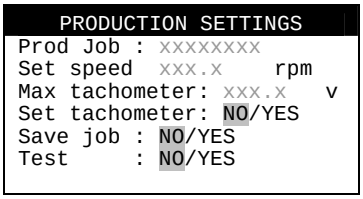
Actual production data



Ext. act : Actual extruder capacity (kg/h)
ⓘ**Only visible in Tachometer mode**
Act tachometer : Actual voltage of the tachometer generator (v)
ⓘ**Only visible in Tachometer mode**
Col. set : Calculated output (gr/sec)
Col. act. : Actual color output (gr/sec)
ⓘ**Actual color output is only visible after the first automatic RPM adjustment.**
Hopper : Material weight in the hopper
>< : Standstill sign. When the vibrations are too large, this sign disappears!
Speed : Actual motor speed (RPM)
Status : Status of the feeding: Standby / Feeding / Filling

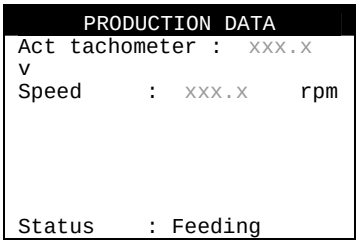
Extrusion / RPM mode

Production Settings



Prod Job :Name of the production Job
Set speed :Set motor speed (RPM)
Max tachometer : Maximum tachometer voltage (v)
ⓘ**Only visible in Tachometer mode**
Set tachometer : Automatic voltage take over from tachometer generator
ⓘ**Only visible in Tachometer mode**
Save job : Save production settings into a job
Test : Initial production test with set speed and time

Actual production data



Act tachometer: Actual voltage of the tachometer generator (v)
ⓘ**Only visible in Tachometer mode**
Speed : Actual motor speed (RPM)
Status : Status of the feeding: Standby / feeding / filling

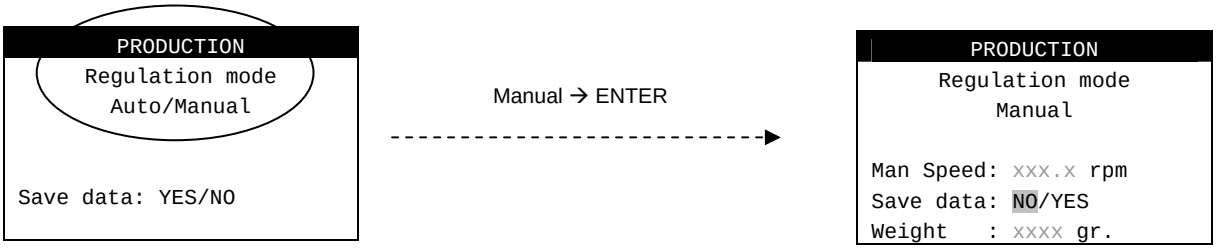
7.8 Auto / Manual regulation mode & save data function

Two functions are available within one screen:
- Regulation mode: Auto/Manual
- Save data function.

ⓘ These two functions are not accessible within the OPERATOR user level.

Regulation mode: Auto/Manual

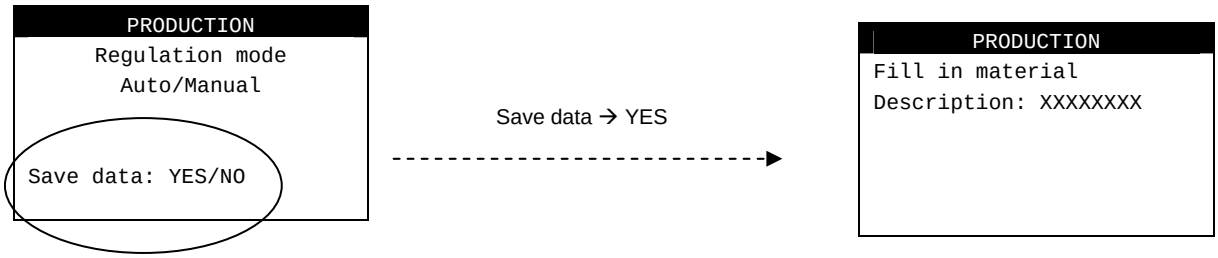
This function allows you to switch from automatic control (gravimetric) to manual control (RPM) during operation. It is only accessible when the TrueFeed's motor is on and the control is not in the Operator user level.



In this screen the RPM can be changed.
-When changing back to Auto mode without saving data, the unit will revert to the "old" RPM and continue self-calibrating.
-When changing back to Auto mode after saving data (manual entered speed), the unit will first keep the manual set speed but will self-calibrate to the entered setpoint.

Save data Function

This selection allows storing the actual data once the feeder shows an actual value (color actual). A material description needs to be entered to save this data. A full material curve based on the stored point will be saved in the memory of the control under the entered name.
Starting a new production run with a previously stored material calibration/speed is now possible.



7.9 Production JOB

What is a Production JOB?
In a production job the relevant production data will be stored.
The following data will be stored in a JOB, depending on the TrueFeed's configuration:

CONFIGURATIONS settings:	Control mode:	GRAVI / RPM
	Prod. Mode:	INJ / EXT
	Input mode:	Timer / relay / tachometer
PRODUCTION settings:	Job description:	Name of the job
	Shot wth.:	Weight of the part
	color% :	Color amount (%)
	feed time:	Feeding time (sec.)
	Ext. cap.:	Extruder capacity (kg/h)
	Max. tachometer:	Maximum tachometer voltage (v)
	RPM:	Motor speed (RPM)
CALIBRATION:	Material calibration:	Stored material calibration

How can I use a Production JOB?
ⓘ Production JOB is only visible if enabled in the CONFIGURATIONS menu.
First enable the JOB functionality in CONFIGURATIONS menu.
A Production JOB can be made in the PRODUCTION menu.

- Fill in the production settings
- Go to save JOB
- Select "YES" to save
- Give the JOB a description (maximum of eight characters)
- Save "YES"
- Confirm by pressing "Enter"

All the settings as described above will be stored.
The JOB will be selected in the PRODUCTION settings screen immediately.

How can I select a Production JOB?
When one or more JOBs are made, one can be selected as follows:

- Navigate to PRODUCTION menu.
- Use the cursor to go to Prod JOB.
- Press the "Enter" button for two (2) seconds
- A list will appear with stored JOB files
- Select one with the arrow buttons and press "Enter"

ⓘ When using a production job, the set CONFIGURATIONS will be overwritten.

If the JOB made is not in the list, fill in the first letter(s) of the JOB and press "Enter". Now a filtered list appears. To go back to the main list, fill in the selection with spaces and press "Enter".

It is also possible to fill in the JOB description immediately in the PRODUCTION menu and press "Enter". The message **"JOB not found, select other JOB"** appears when a false JOB is filled in.
To clear the JOB description, fill in the selection with spaces or select an empty JOB out of the JOB list and press "Enter".

How can I delete or rename a Production JOB?
To delete or rename one or more JOB, see Chapter 7.13
To delete all JOBs select master reset JOBS in the CONFIGURATIONS menu and press "Enter".

7.10 Filling the hopper

MANUAL FILLING

The control will automatically detect when the hopper is being manually filled.
During the time that the hopper is being filled, the TrueFeed is feeding with a fixed RPM; this means that the unit is running temporarily volumetric. As soon as the hopper is filled, the TrueFeed immediately reverts to working gravimetric.

AUTOMATIC FILLING (optional)

Introduction
Conair Truefeed feeders are capable of handling a variety of dry materials. Three (3) different filling systems are available, depending on the material properties.
-The Conair Ejector (ME) system for dust-free or nearly dust-free materials.
-The Conair Vacuum (MV) system for materials that are NOT entirely dust free.
-The Conair (EX) loading system for use with an alternative hopper loader that includes a support frame and surge hopper.

The ME, MV and EX systems are driven by low-pressure compressed air and mounted directly on top of the hopper lid of the Conair feeder. The TrueFeed controls the operation of the ME, MV and EX systems.

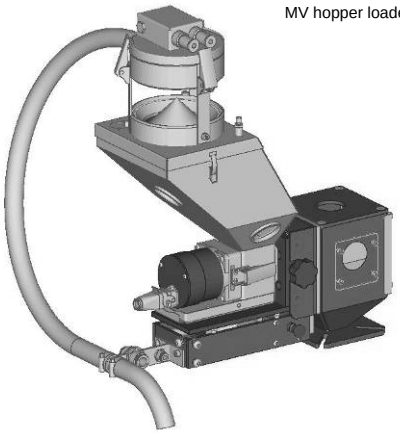
All parts are aluminum or stainless steel and are virtually maintenance-free. Only the filter on the ME and MX systems need to be cleaned periodically. To increase reliability and safety, there are no moving parts except for the pneumatically-operated closing valve of the MV system and the knife gate of the EX system.

How the ME works
The ME system blows the material from a bag, drum or container into the hopper of the feeder. The hopper lid of the housing has a simple and easy-to-clean dust filter to keep any dust particles in the hopper. The system is triggered by the filling start weight (CONFIGURATIONS menu). This parameter also generates a low-level alarm if the hopper is empty. For installation instructions, *see Appendix E entitled, ME Hopper Loader Installation.*

ME hopper loader

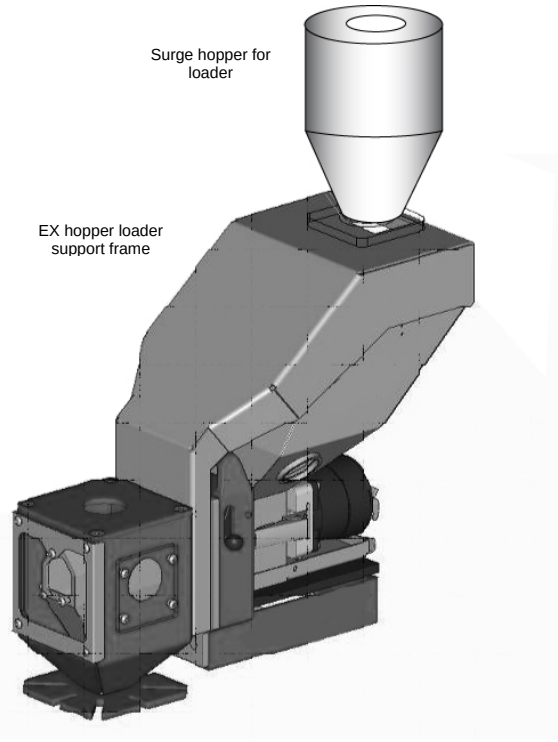
How the MV works
The MV system uses a 3-stage vacuum generator driven by compressed air to create a vacuum that conveys material into a chamber that closes. Once the chamber is filled with material, the cone that closes the chamber will open and the material will be discharged into the hopper. The system is equipped with a filter to ensure that the finest particles (> 5 micron) stay in the system and are not released into the atmosphere. This makes the MV system the most practical and user-friendly system for both powders and granules. For installation instructions, *see Appendix F entitled, MV Hopper Loader Installation.*

MV hopper loader



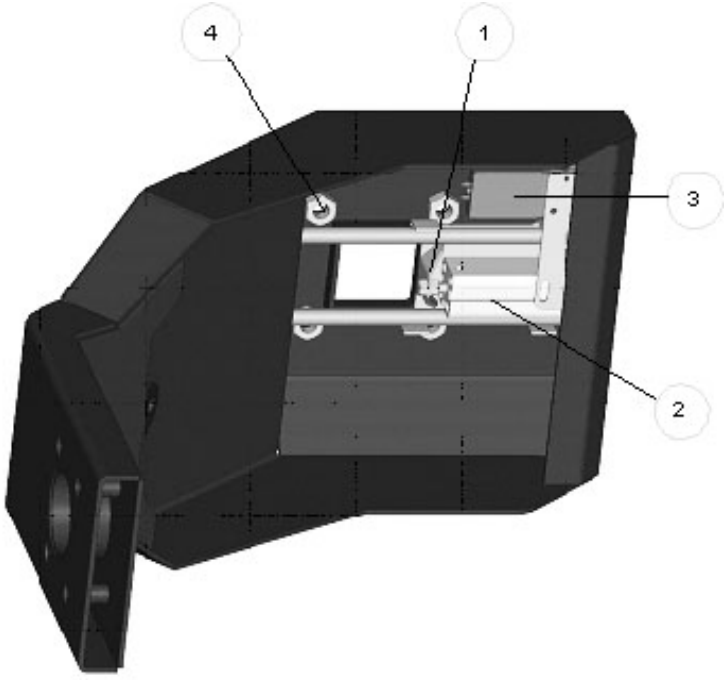
How the EX (support frame for external hopper loader) works
The function of the support frame is to use an alternate hopper loader in combination with the TrueFeed. The support frame is equipped with a knife gate valve for filling the hopper. The valve is normally-closed. If the filling start level is reached (default 1.7 lb {800 g}) the valve opens and the hopper is filled until the EX-H level (default 5.5 lb {2500 g}). The valve will then close automatically. The support frame works independently from the hopper loader. If for some reason the hopper weight reaches the EX-HH level a warning will be displayed. This can happen if the valve does not close, for example.

Contact Conair for appropriate loader sizing to your surge hopper.



⚠ Do not remove the dispensing unit, surge bin, loader or feeder hopper before the compressed air of the knife gate valve has been disconnected and the “Stop” button has been pressed. The knife gate can still energize causing serious personal injury.

ⓘ It will be necessary to use a customer specific surge hopper between the hopper loader and the support frame for proper mounting.



1	Knife gate valve
2	Cylinder for open/close the valve
3	Solenoid valve
4	Connection Nuts (M10) for hopper loader mounting

General
ⓘThe hopper loader is only activated when the motor is On .
ⓘ Emergency stop. To stop the hopper loader during production, go to the HOPPER LOADER menu and switch the ME, MV or EX system to “OFF”.

Hopper loader settings

This part of the manual describes how to configure the hopper loader. For further technical information about the hopper loader consult the specific hopper loader manual and Appendix E and F.

There are four (4) ways to fill the hopper:
1. Manually
2. Automatically with the ME hopper loader
3. Automatically with the MV hopper loader
4. Automatically with the EX external hopper loader in combination with the support frame

Manual
Open the hopper lid and fill the hopper by hand. (filling will be detected automatically)
The message “Low hopper level” appears when the hopper is empty.
(Default 1.5 lb {700 g} In CONFIGURATIONS menu)

ME hopper loader (Conair hopper loader operated by compressed air)

ME FILLING SYSTEM	
ME system :	OFF/ON
Fill time :	30 sec
Alarm time :	31 sec
Alarm mode :	OFF/ON
Manual fill:	NO/YES

ME system: Switch ON / OFF the ME hopper loader system
Fill time: Fill time [sec.], during this time the system blows material into the hopper of the dispensing unit.
Alarm time: Fill Alarm [sec.], if the hopper weight is not above the 1.7 lb {800 g} within this time, an alarm will activate. The alarm time can not be set lower than the fill time.
Alarm mode: ME hopper loader is ON / OFF during fill alarm.
ON = ME Hopper loader stays activated during a filling alarm.
OFF = ME Hopper loader will be deactivated during a filling alarm.
Manual fill: Yes = starting filling immediately; No = stop filling immediately
Only visible with the control in STOP mode.
The manual filling function can be used to fill the hopper before the start of production, for example.

ⓘ Highlighted Parameters are factory settings.

MV hopper loader (Conair hopper loader operated by vacuum)

MV FILLING SYSTEM	
MV system :	OFF/ON
Fill time :	20 sec
Empty time :	05 sec
Fill cycles :	3 x
Alarm cycles:	10 x
Alarm mode :	OFF/ON
Manual fill:	NO/YES

MV system: Switch ON / OFF the MV hopper loader system
Fill time: Fill time [sec.], during this time the MV system conveys material into the vacuum chamber.
Empty time: Empty time [sec.], during this time the cone that closes the chamber will open and material falls down into the hopper of the TrueFeed.
Fill cycles: Number of extra fill cycles after the hopper weight is above the 1.7 lb {800 g} again
Alarm cycles: Number of idle fill cycles before a fill alarm. The number of alarm cycles needs to be more than the number of Fill cycles.
Alarm mode: MV hopper loader is ON / OFF during fill alarm.
ON = MV Hopper loader stays activated during a filling alarm.
OFF = MV Hopper loader will be deactivated during a filling alarm.
Manual fill: Yes = starting filling immediately; No = stop filling immediately
Only visible with the control in STOP mode.
The manual filling function can be to fill the hopper before start of production, for example.

ⓘ Highlighted Parameters are factory settings.

EX hopper loader (support frame for external hopper loader)

```
EX FILLING SYSTEM

EX system      :    OFF/ON
EX alarm time  :    31 sec
EX alarm mode  :    OFF/ON
Manual fill    :    NO/YES
```

EX system: Switch ON / OFF the Support frame system.

Alarm time: Fill Alarm [sec.], if the hopper weight is not above the filling start level within this time, an alarm will activate.

Alarm mode: EX hopper loader is ON / OFF during fill alarm.
ON = The system stays activated during a filling alarm.
OFF = The system will be deactivated during a filling alarm.

Manual fill: Yes = starting filling immediately; No = stop filling immediately
Only visible with the control in STOP mode.
The manual fill function can be used to fill the hopper before the start of production, for example.

ⓘ Highlighted Parameters are factory settings.

Output signals

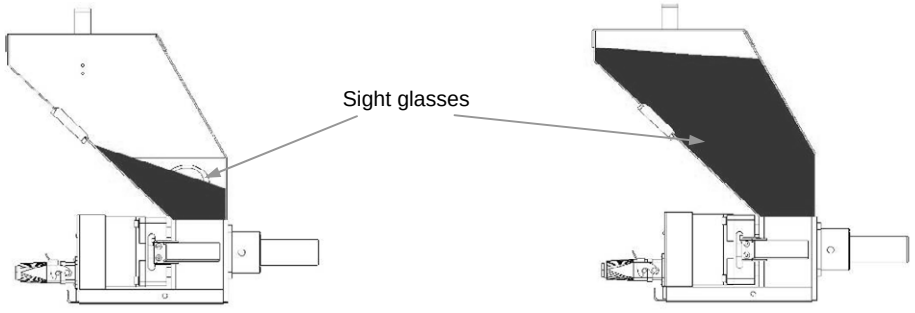
During fill time there will be a 24VDC signal between connection 24 and 25 on the main board to activate the pneumatic solenoid valve.

When the Fill Alarm is activated there will be a 24VDC signal between connection 22 and 23 on the main board to activate the alarm light. The control itself sounds a beeping signal and the alarm LED will be illuminated.

GENERAL RECOMMENDATIONS FOR OPTIMAL HOPPER FILLING

To guarantee the optimal performance of the TrueFeed, it is important to use the correct rate of hopper filling. The higher the output of the feeder, the more important becomes the rate of hopper filling.

During hopper filling, the electronics of the TrueFeed control senses automatically that the hopper is being filled. This automatic filling detection is used for both the manual filling of the hopper and filling with an automatic hopper loader.
During the time that the hopper is being filled, the TrueFeed is feeding with a fixed RPM. This means the unit runs temporarily volumetric. As soon as the hopper filling is complete, the TrueFeed immediately reverts to working gravimetric.
Because the TrueFeed is working volumetrically during hopper filling, Conair recommends reducing the amount of filling cycles, by having the maximum time between a filling cycle and the next filling cycle. This can be performed when using the correct settings for the “Filling start level” and the “Filling stop level”.
When the unit is started with the auto start function enabled and the unit is turned OFF and then ON again, filling will start automatically if the hopper weight is too low.



Filling start level

The moment when the automatic filling starts depends on the entered start level:

Filling start: xxx gr. *(CONFIGURATIONS menu)*

Filling stop level

Filling stop level is determined by the entered fill time for the ME-system:
Fill time: xxx sec

For the MV-system:
Fill time: xxx sec
Empty time: xx sec
Fill cycle: …. x

(Hopper Loader menu)

Recommended settings for ME hopper loader:

-For the Filling Start Weight, use a low filling start weight level as shown on the filling start weight on the previous page, a high fill start weight level will increase the amount of filling cycles.
-Use a fill time long enough so that the material at least covers the sight glass in the back of the hopper. Overfilling the hopper should be avoided.

Recommended settings for MV hopper loader

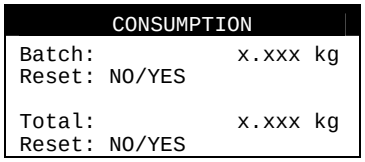
-For the Filling Start Weight use a low filling start weight level as shown on the filling start weight on the previous page, a high fill start weight level will increase the amount of filling cycles.
-Use a fill time so that the vacuum chamber of the MV-Loader is almost completely filled. Overfilling of the vacuum chamber should be avoided.
-The empty time is critical. Set the empty time for approximately two (2) seconds longer than the actual (observed) empty time. An empty time setting that is too short can cause a decrease in the capacity of the MV-hopper loader.
-For the amount of filling cycles, use an amount so that the material at least covers the sight glass in the back of the hopper. Overfilling the hopper should be avoided.

Recommended settings for EX hopper loader (support frame):

-The volume of a standard hopper is 0.2ft^3 {6 L}. To set the EX-H level (stop filling), Conair recommends using a safety margin to prevent the hopper from overfilling.
- EX-H (g) = 5 (liter) x bulk density (g/L)
For example: If the bulk density = 700 g/L, the EX-H should be set to 700 x 5 = 3500 g (7.7 lb).
The EX-HH (g) should be set higher, recommended 700 x 6 = 4200 g (9.3 lb).
Overfilling of the hopper should be avoided because it will effect the measurement.

7.11 Consumption

The Consumption menu will be visible when an automatic filling system is selected and enabled in the HOPPER LOADER menu. Without use of a filling system, accurate working of the consumption registration is not supported.
With the Consumption function, it is possible to view the total quantity of material dispensed by the TrueFeed. The consumption is saved in the control's memory and remains in the memory even when the unit is shut off or unplugged.
To reset the consumption record, navigate to Reset and select "YES" and then press "Enter".



Batch: Consumption of a batch (kg.)
Reset: Reset for batch consumption

Total: Total consumption (kg.) independent from Batch consumption
Reset: Reset of total consumption **and** Batch consumption

ⓘ The consumption record is updated every 10 seconds.

7.12 Alarms

GENERAL
To reset an alarm or warning press the "Stop" or "Menu" button.
When an error occurs using the TrueFeed, the control's display will indicate an error code and description.
Along with the displayed error, an output contact will be switched.
The control itself will sound a beeping signal and the alarm LED will illuminate.

To distinguish between an alarm and warning:

Warning: Warning output is ON, but the feeder continues running (24 VDC contact, pin 22-23 of the main board will be active, for example to activate the strobe light.)

Alarm: Alarm output is ON and the **feeder stops running** (Potential free contact, pin 26-27 of the main board will be active, for example to stop the injection molding machine or extruder)

Free programmable errors can be configured to an **Alarm** or **Warning**.
To set the free programmable outputs to an alarm or warning, enter the ALARMS menu.
First the alarm history will be shown. The alarms and warnings will be stored here.
When you press the menu button again you will enter the Alarm CONFIGURATIONS menu.
Here you can set the alarm or warning output with and pressing "Enter".

ALARM HISTORY
All alarms and warnings will be stored in the alarm history.

- Navigate to the ALARMS menu
- Press to scroll to the stored alarms (maximum of 50).

The alarm history can be reset by the Supervisor in CONFIGURATIONS menu by

- **Master reset: Alarm**

The following errors may be displayed:

Error Code	Warnings	
00	Low hopper level	Material is below the hopper empty weight
01	Maximum deviation exceeded	The deviation of the material output is too high
02	Filling system unable to load material	Fill system is not working correctly
03	Maximum RPM exceeded, change dosing tool for higher capacity	Calculated motor speed is too high
05	Calibration, no weight change	No weight change while calibrating
06	Hi-Hi level	Hopper weight has reached the EX-HH level
07	Minimum motor speed < 0.1 RPM	Calculated motor speed is too low
	Alarms	
08	Motor connection failure	Motor not connected / Motor or connection damaged
09	Parameters damaged	Check CONFIGURATIONS parameters
10	Parameters set to factory defaults	Check all parameter settings
11	Load cell calibration set to factory defaults	Recalibrate the load cell
12	JOB and curve database initialized	JOBs and Materials are reset
13	Load cell connection failure	Load cell connection is not correct

WARNINGS

All **warnings** are cleared automatically, except for Error code 05.
It is possible to cancel a warning, but when the error remains, the warning will return after 60 seconds. This provides the operator enough time to solve the problem without having the alarm reactivate.

Error 00	**"Low hopper level"** **[free programmable]** If this warning appears the material in the hopper is below the hopper empty weight 1.5 lb {700 g}. In CONFIGURATIONS menu this setting can be changed. - Ensure there is enough material in the hopper. - Check the hopper empty setting in CONFIGURATIONS menu. - Ensure that the hopper loader is working correctly.
Error 01	**"Maximum deviation exceeded"** **[free programmable]** If this warning appears, the feeding output (grams/sec) is consistently not within set percentage. See page 17 for more information.
Error 02	**"Filling system unable to load material"** If this warning appears, the alarm time (ME hopper loader) or alarm cycles (MV hopper loader) are exceeded. - Ensure there is enough material. - Ensure that the material is not stuck somewhere. - Check the operation of the hopper loader. - Check the hopper loader settings.
Error 03	**"Maximum RPM exceeded, change feeding tool for higher capacity"** Calculated motor speed is higher than the maximum of 200 RPM. - Check the material output at 200 RPM. - Check the production settings. - Increase the feeding time (if possible). - Try another dispensing cylinder with higher output, for example an A20 feed screw.
Error 05	**"Calibration, no weight change"** No weight change while calibrating (See Chapter 7.6). - Ensure there is enough material in the hopper. - Ensure that the material is not stuck in the dispensing cylinder. - Ensure that the load cell is connected correctly. - Check the weight data by performing a weight check (See Chapter 7.5). - Ensure that there are no vibrations that may have influence. - Check the rotation direction of the dispensing cylinder. Front view to the right (Clockwise).
Error 06	**"EX-Hi Hi level"** - Ensure that the knife gate valve is in the closed position. - Check if the knife gate is sliding. - Ensure that the parameters for EX-H level and EX-HH levels are set correct.
Error 07	**"Minimum motor speed < 0.1 RPM"** Calculated motor speed is lower than the minimum of 0.5 RPM. - Ensure there is enough material in the hopper. - Check the production settings. - Decrease the feeding time (if possible). - Try another dispensing with lower output, for example a GL-cylinder. - Check the rotation direction of the dispensing cylinder. Front view to the right (Clockwise).

ALARMS

Error 08	**“Motor connection failure”** Motor connection is not correct. - Ensure that the motor is connected. - Check cables and connectors for damage.
Error 09	**“Parameters damaged”** Some CONFIGURATIONS parameters are incorrect. - Check the CONFIGURATIONS parameters.
Error 10	**“Parameters set to factory defaults”** All parameter settings are reset to factory defaults. - Check all parameter settings.
Error 11	**“Load cell calibration set to factory defaults”** Load cell calibration is incorrect and has been reset to factory defaults. - Recalibrate the load cell.
Error 12	**“JOBs and curve database initialized”** All JOBs and materials are reset. - Make new material calibrations and Jobs.
Error 13	**“Load cell connection failure”** -Load cell connection is not correct. -Load cell connector is not connected to the control.

7.13 Files

In this “File manager” menu, files (JOBs and Material curves) can be searched, renamed and deleted.

When entering the file manager menu, two file types can be selected:
-Material (material calibrations)
-JOBs (Production JOBs)

After confirming, the file list will be shown. Now you can search for files, rename or delete them.

If the JOB or Material curve you are searching for is not in the list, fill in the first letter(s) or complete name of the JOB or Material curve and press “Enter”. Now a filtered list appears. To go back to the main list, fill in the selection spaces and press “Enter”.

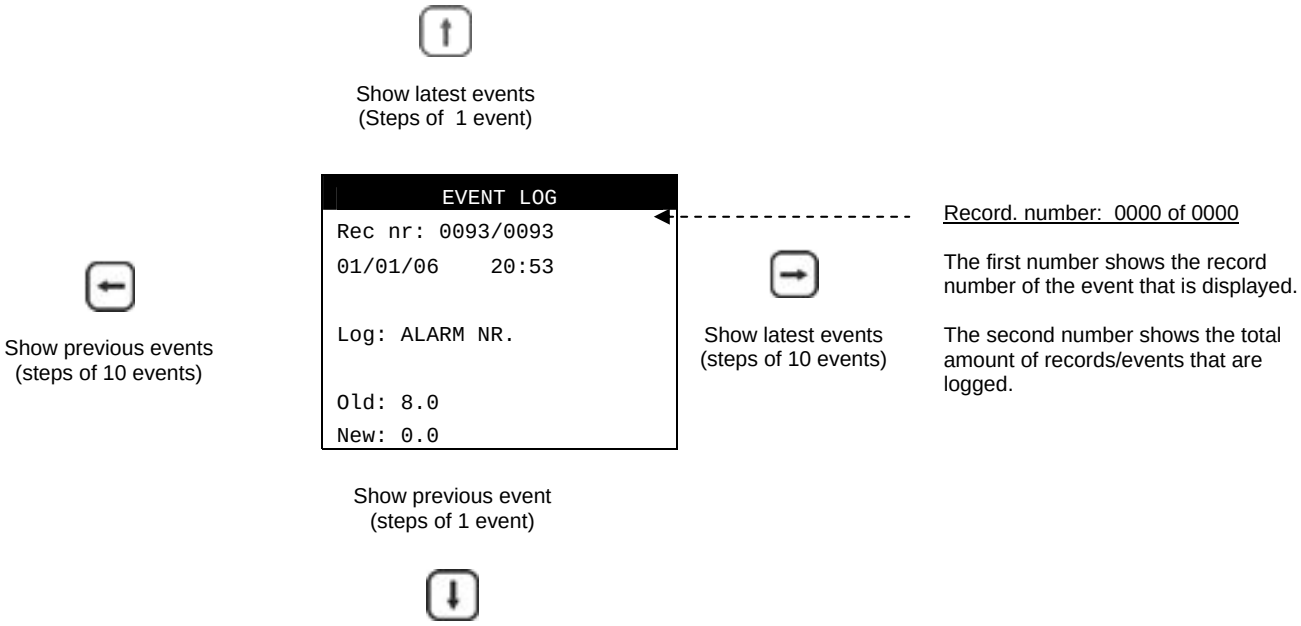
It is also possible to fill in the Job or Material curve immediately in the File Manager and press “Enter. To clear the description, fill in the selection with spaces or select an empty JOB or material out of the list and press “Enter”.

Search: = Scroll through the files.
Delete: = Delete a file, press “Enter” to confirm.
Rename: = Rename a file, press “Enter” to confirm.

7.14 Event LOG

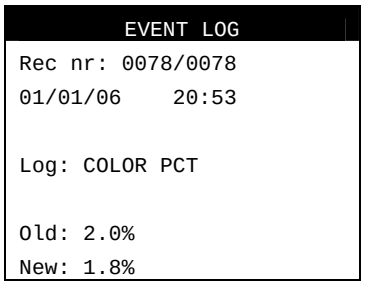
Setting changes made with the control are stored in the Event Log.
Each event is filed with record number, date and time.

Approximately 7,000 events will be stored in the memory of the control. If the memory is filled, the latest event will be logged and the oldest event will be deleted (first in / first out shift register).
It is possible to store these events to a PC.


Show latest events
(Steps of 1 event)
EVENT LOG
Rec nr: 0093/0093
01/01/06 20:53
Log: ALARM NR.
Old: 8.0
New: 0.0
Record. number: 0000 of 0000
The first number shows the record number of the event that is displayed.
The second number shows the total amount of records/events that are logged.
Show previous events
(steps of 10 events)
Show latest events
(steps of 10 events)
Show previous event
(steps of 1 event)

Event LOG of Alarms

The error code of an alarm or warning will be logged when an alarm or warning occurs.
The error codes can be found in Chapter 7.12



To effectively use the Event Log, the correct date and time must be set in the CONFIGURATIONS menu.

8. System performance

System performance can be characterized by the time it takes the unit to reach the desired set point, the accuracy of the set point and the consistency of the material output.

The algorithm is self-adjusting to the conditions and because the conditions vary, it cannot be predicted how long it will take the unit to adjust itself and reach a set point with certain accuracy.

The following variables influence system performance:

Material properties. Easy flowing, non-sticky and non-static material that comes in the form of small granules or powder can be dosed very accurately and consistently. The accuracy and consistency of the material output drops with increased granule size. However, this is only a problem with extremely low outputs.

Periodical cleaning of the dispensing cylinder and seals is required for proper operation.

Extreme vibrations and shocks influence the system's performance noticeably. Normally, the system will be able to compensate for vibrations and shocks.

The TrueFeed algorithm needs a certain time to weigh material loss and adjust the RPM accordingly. This time depends largely on the set point and the above mentioned three variables. The system constantly adjusts itself to reach the best possible accuracy for current conditions. Over time it can reach an accuracy within ± 1%.

Under "normal" circumstances the unit will be more accurate than 10% after the first adjustment of the RPM.

Before the unit makes its first RPM adjustment it may be running already very close to the desired set point because it uses a cylinder and material reference system to determine the first RPM setting. This accuracy however cannot be guaranteed because material properties can vary substantially from material to material.

With injection molding the shot-to-shot accuracy depends, besides the variables mentioned so far, on the shot time. If large and heavy granules have to be dosed in a very short time this will influence the shot accuracy and repeatability because one granule can make a difference of a few percent to the shot weight.

An unstable relay or tachometer signal has a negative effect on the accuracy, repeatability and speed of the system because it will adjust to these parameter changes.

A long cycle time combined with low dosage per shot can result in a slow system.

8.1 Reset regulation

- Changing one parameter during production will cause the TrueFeed to adjust to the changes, but it will not reset the regulation totally.
- Changing more production parameters during production within 10 seconds after each other will cause the TrueFeed regulation to reset. This is necessary for the system to adjust quickly to large changes in the settings.
- Turning the power OFF and ON again will also cause the regulation to reset.
- Motor OFF and ON again will only cause the regulation to pause. The start up RPM will be the same as the last RPM before the stop.
- Changing one parameter with the motor OFF causes total reset of the regulation.
- With auto start = ON (CONFIGURATIONS menu) the motor follows the last status (motor Standby or motor Stop status) and causes total reset of the regulation.

9. Troubleshooting

***Problem*: The feeder does not come into specification or a maximum deviation alarm is activated.**

Possible causes:

1. Ensure that all cables are connected correctly.
2. Ensure that the transport protection pin is removed from the load cell safety bolt.
3. Ensure that the hopper assembly is fixed tightly to the weighing platform and that the throat adaptor is fixed tightly to the production machine.
4. Ensure that the dispensing cylinder is tightly fixed to the motor shaft.
5. Excessive build-up of material on the dispensing cylinder may have affected proper feeding. To avoid this, be sure that the seals and dispensing cylinder are clean.
6. Ensure to remove any tension on the cables connected to the weighing platform.
7. Use the weight check function with the reference weight to determine the correct function of the weighing system.
8. If the weight check gives the correct result, ensure that the material flow into the cylinder has not been blocked.
9. Another cause may be an obstruction to the weighing system. Ensure that there is at least ≈ 0.04 in {1mm} space between all the pointed screws on the load cell frame or platform and that there is no material or dirt blocking the movement.
10. In case of a water-cooled throat adaptor, ensure there is no material build up around the dispensing cylinder and the water-cooled pipe that can obstruct the free movement of the weighing system.
11. Ensure that the input signal is stable.
12. If none of the above causes the problem, recalibrate the system and attempt the weight check again.

***Problem*: The feeder does come into specification but seems to be slow.**

Possible causes:

1. Extreme vibrations and shocks to the system.
2. Extremely low setpoint. See Chapter 8, SYSTEM PERFORMANCE for more information.
3. Ensure that the automatic hopper hoses are connected properly.

***Problem*: The input/start-signal is connected but the unit does not recognize the start signal.**

Possible causes:

1. Ensure that the correct wires are connected for potential free contact, potential contact or tachometer. Also check if the (+) and (–) sides of the wiring are connected correctly.
   [See chapter 6.5, 7.4 and Appendix B for the Wiring diagram.]
2. The earlier series control does need a different wiring diagram than the one printed in this manual. The wiring diagram for main boards with the code MVC000BA02 (this code is printed on the main board) can be sent by Conair on request.
3. Automatic fuse is activated, this can happen when there was a short-circuit at the input connection. To deactivate the automatic fuse, the control needs to be turned OFF for a period of time and ON again. Check and repair any short-circuits before cycling the feeder's power.

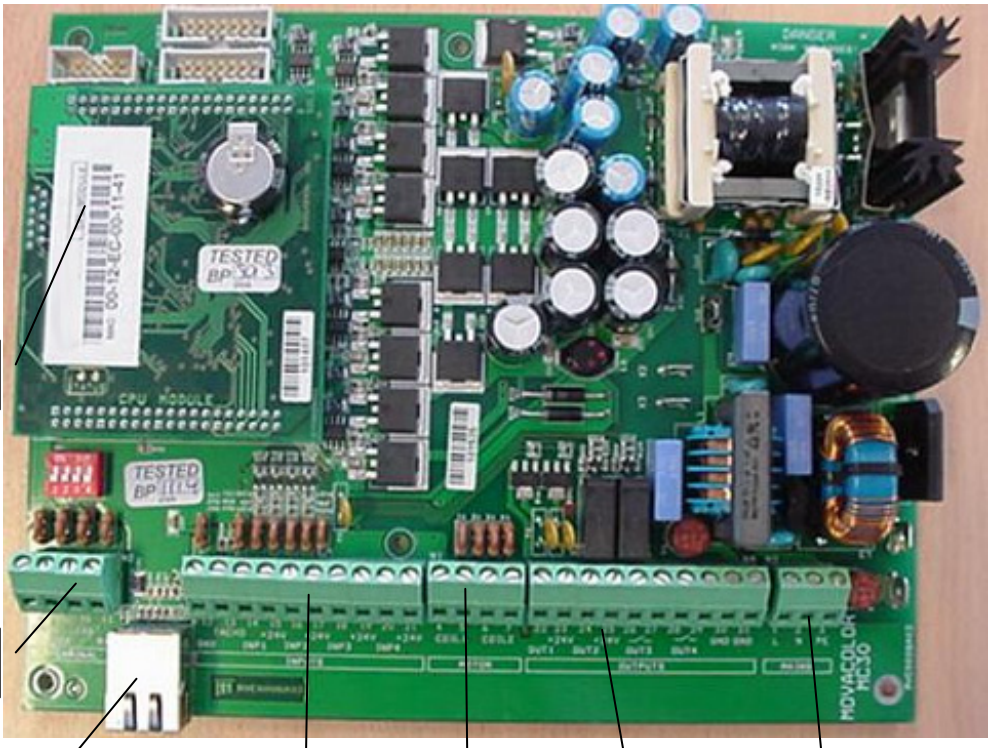
***Problem*: The hopper weight is not stable.**

Possible causes:

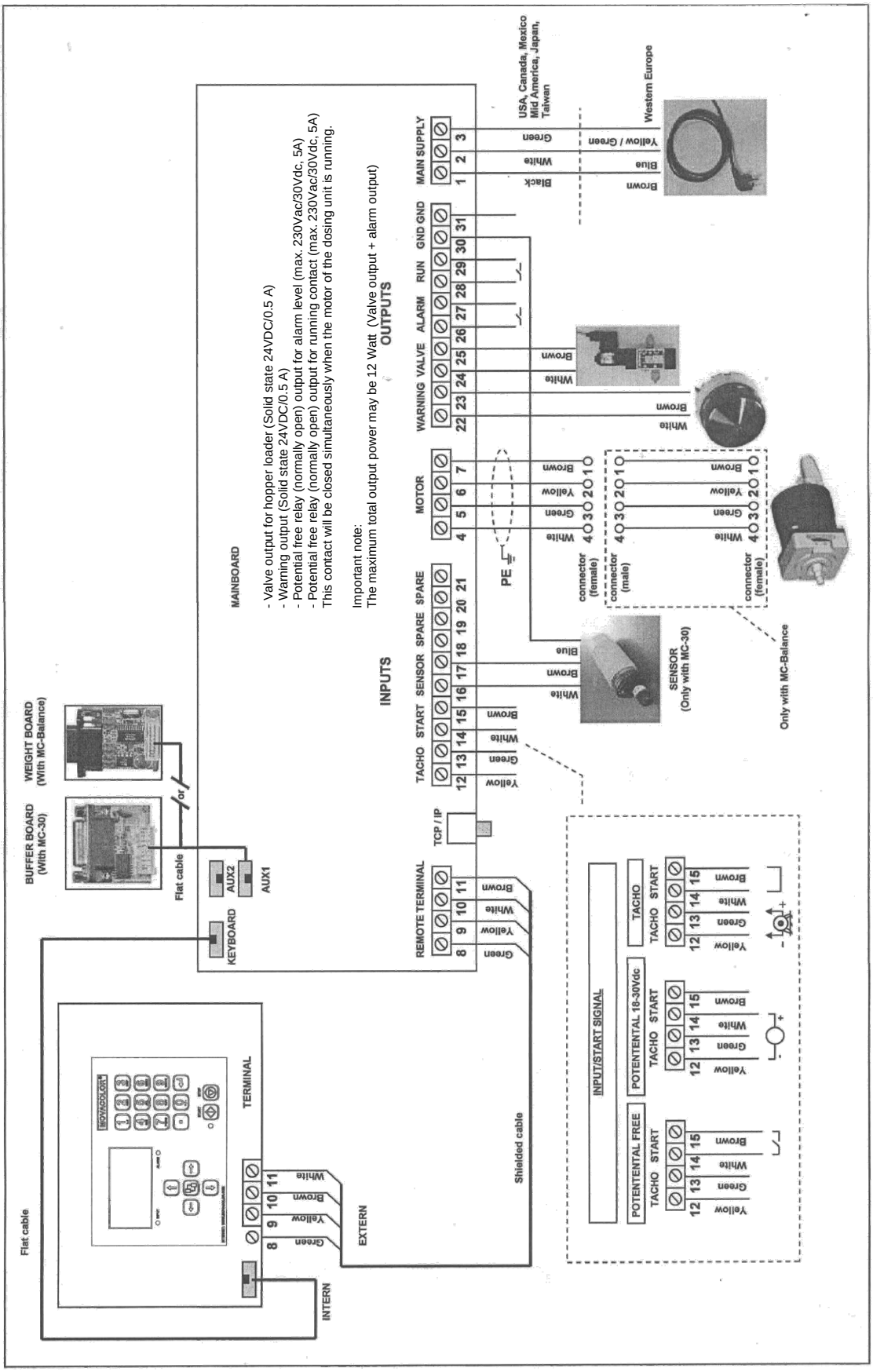
1. Ensure that the weighing signal is not influenced by external circumstances, for example that the load cell cable passes near to electromagnetic fields or electro motors.
2. Extreme vibrations and shocks to the system.
3. Ensure that there is no obstruction to the weighing frame.
4. Ensure that the automatic hopper hoses are connected properly.

APPENDIX A: TrueFeed Print View

Ribbon cable connection between terminal and mainboard
Terminal (display)
Ribbon cable connection between mainboard and load cell board
Load cell board



APPENDIX B: TrueFeed Wiring Diagram



APPENDIX C: TrueFeed Technical Specifications

Controls:
Set and actual % setting for injection molding and extrusion
Extrusion control by relay or tachometer
Injection molding control
Automatic metering time synchronization or by manual timer
Manual speed and time setting
Speed: Manual setting from 0.1 to 200 RPM max, in increments of 0.1 RPM.
Time: Manual settings from 0.1 to 999 sec in increments of 0.1 sec.
3 keyboard user levels
Integrated hopper loader control

Monitoring/System Information/External communication
128 x 84 full graphic LCD front display with integrated backlight.

Man/Machine interface:	Using full language command structure
External Communication:	PC link using TCP/IP internet protocol; optional RS232 or 485 available
Alarm:	2 user alarm levels

Specifications/Standards & Directives/ Technical data:

Power supply:	Operating power from 80 VAC to 260 VAC, 50 and 60 Hz by integrated automatic voltage selector
Power consumption:	80 Watt maximum
Stepper motor:	(1.8 degr/step) max 2A or 4A (high output) at 40 Volt.
Operating Temperature:	-4° to +158° F {-20° to +70° C}.
Load cell and electronics:	20 bits A/D resolution with a full digital filtering

Input signal(s):

Injection molding:	Start/Stop trigger input, potential free or 24VDC*
Extrusion:	Start/Stop trigger input, potential free or 24VDC*
	Tachometer input 0 to 30VDC

* Note potential contact
Guaranteed OFF: 0-8VDC
Guaranteed ON: 18-30VDC

Output(s):
-Stepper motor max. output 2A or 4A (high output) at 40VDC
-Solid state 24VDC/0.5 A output for valve hopper loader
-Solid state 24VDC/0.5 A output for external warning
-Relay for alarm level (max. 230VAC/30VDC, 5A)
-Relay for running contact (max. 230VAC/30VDC, 5A)
-Maximum total output power: 12 Watt (Valve output + alarm output)

Standard Directives:
Protection class: IP-50
According to CE standards:
EN50081-2 (HF radiation industry)
EN50082-2 (HF immunity industry)

Safety
- In case of overload due to short-circuit or incorrect connection, the power supply automatically shuts down.
- Opto insulated start input for connection to production machine.

Machine connection flange:
Standard flange NSt40-throat adaptor with cleaning opening.
Inlet/outlet ø 1.9 in / ø 1.5 in {ø50mm / ø40mm}, steel epoxy coated RAL 3002

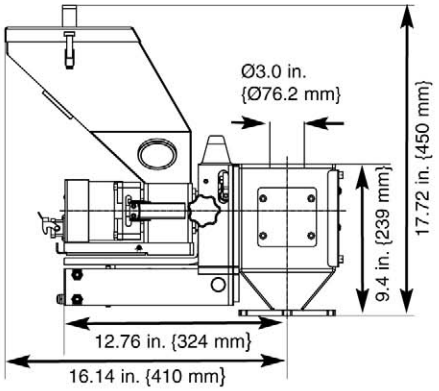
Loadframe:

- Balance frame:	Steel, epoxy coated RAL 3002
- Weighing frame:	Aluminum, epoxy coated RAL 9005
- Load cell:	Nominal Load: 44 lb {20 kg}
	Temp. compensated
	Temp. range: -4° to 140° F { -20° to 60° C}
	Protection level: IP63 EN60529

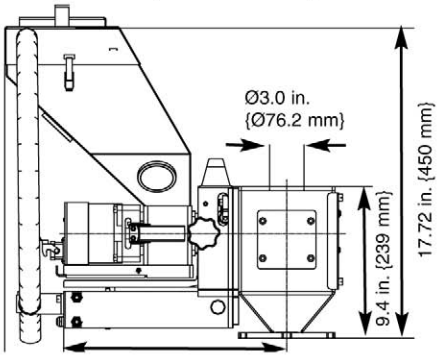
Optional parts
- 12 liter hopper stainless steel.
- Flange type NSt90 with cleaning opening and inlet/outlet Ø1.9 in/Ø3.5 in {Ø50 mm/ Ø90 mm}, steel epoxy coated.
- Water-cooled flange BH(A) inlet/outlet Ø1.9 in/Ø1.9 in {50 mm/50 mm} stainless steel ANSI 304.
- Water-cooled flange PHA inlet/outlet Ø3.9 in/Ø3.9 in {100 mm/100 mm}
- Hopper loader type ME
- Hopper loader type MV
- Hopper loader type EX
- Mixers
- External Alarm Flash light
- External Alarm Siren

APPENDIX D: TrueFeed Dimensions

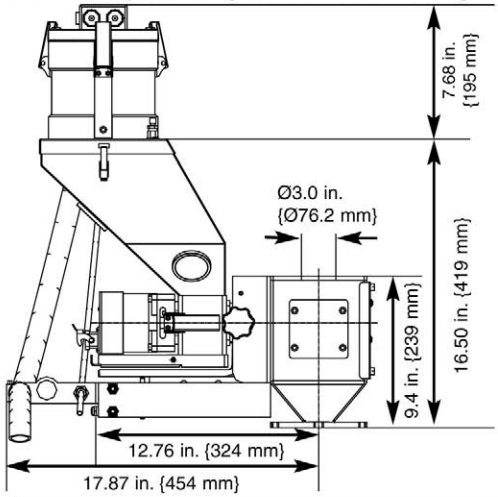
Shown with standard hand-fill lid



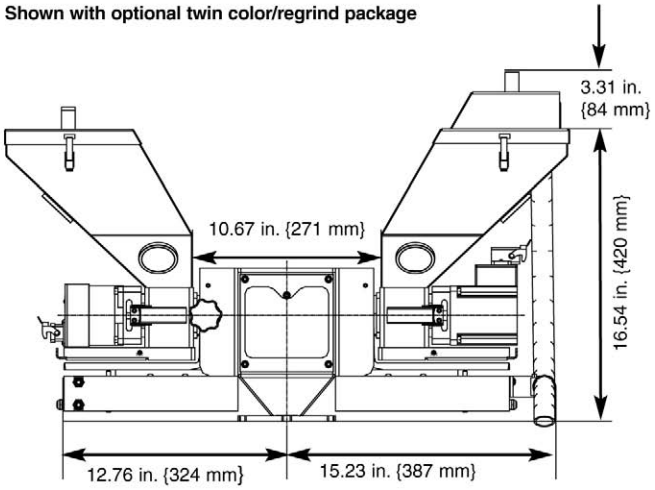
Side View - TF01AB
Shown with optional compressed air loading lid



Side View - TF01AK
Shown with optional compressed air vacuum loading lid

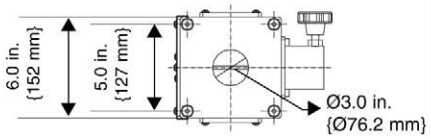


Side View - TF01AH/AJ
Shown with optional twin color/regrind package

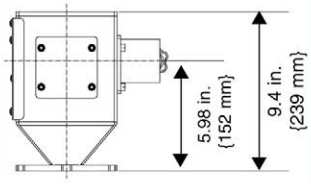


THROAT ADAPTER REFERENCE - Model 07 shown.

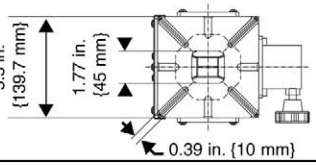
Throat Adapter Top



Throat Adapter Height



Throat Adapter Bottom



APPENDIX E: ME Hopper Loader

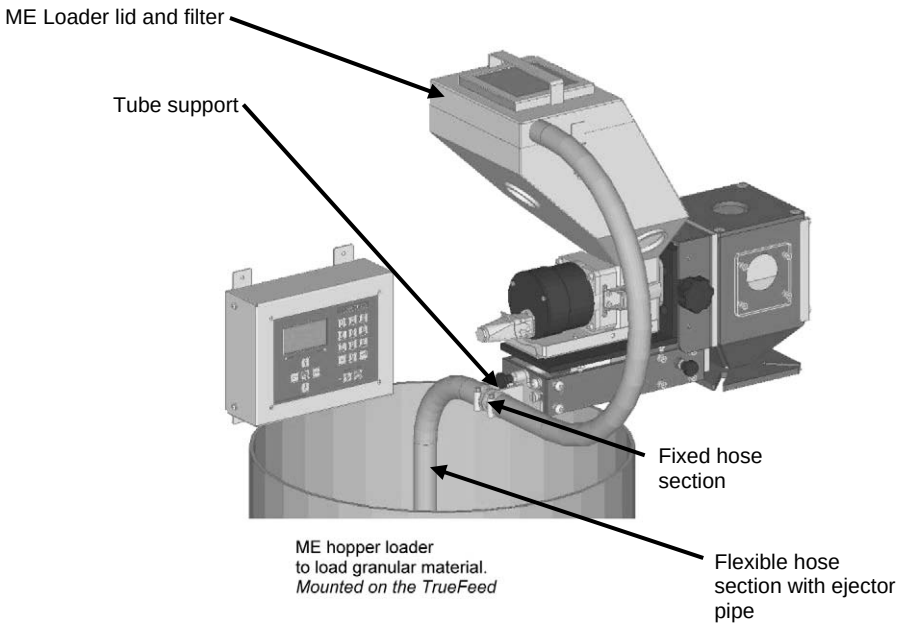
1. Description

1.1 What is the ME-Hopper loader?

The ME system blows material from a bag, drum or container into the hopper of the TrueFeed. The hopper lid of the housing has a simple and easy-to-clean dust filter to keep any dust particles in the hopper.

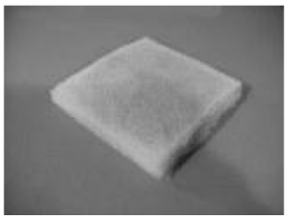
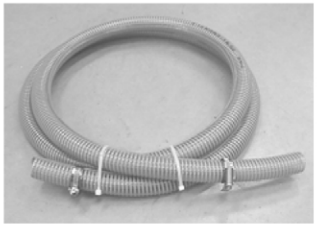
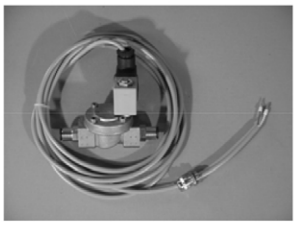
The hopper loader is controlled by the TrueFeed control.

When the ME system is installed on the TrueFeed, the system will be triggered by the filling start weight (CONFIGURATIONS menu). The hopper empty weight generates a low-level alarm if the hopper is empty.



ME hopper loader
to load granular material.
Mounted on the TrueFeed

1.2 Overview of parts

	ME38
Hopper lid + filter	
Material hose, standard 9.8 ft	 9.8 ft {3 m} Inside ø1.4 in. ø38mm
Compressed air hose, standard 9.8 ft {3m}	
Solenoid valve	
Ejector pipe	

2. Installation

2.1 Mechanical installation

The hopper loader lid fits directly on the hopper of the TrueFeed.
To attach the ME hopper to the TrueFeed lid, quick release clamps on the hopper are used.
If the ME hopper loader is delivered subsequently instead of together with a TrueFeed unit the tube support will need to be mounted to the frame of the TrueFeed.

2.2 Compressed air installation

The ME loader uses compressed air to convey material. The inlet for your compressed air supply line is on the solenoid valve. The air connection diagram can be found on the valve's body.

1. Connect the compressed air to the ø0.31 x 0.24 in. {ø8x6 mm} compressed air connection on the solenoid valve. The compressed air source must deliver a maximum of 58 - 116 PSI {4-8 bar} of clean, dry (non-lubricated), air.

2. Make connections from the solenoid and the ejector pipe with the provided compressed air tubing. Quick disconnect fittings are provided for these connections. The tubing should be cut to length for maximum efficiency of the system. Use straight cuts to assure a good square tubing end.

CAUTION:
Be sure to provide hazard-free routing of the tubing, keep it away from hot or moving surfaces and out of the way of personnel.

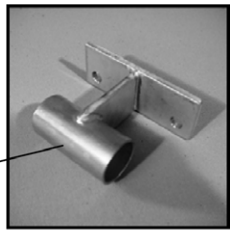
2.3 Connecting material line

The flexible hose will need to be attached over the inlet pipe of the ME hopper lid and ejector pipe.
Secure the hose with a hose clamp.
For TrueFeed: The flexible hose needs to be attached to the tube support
Secure the hose with a hose clamp.
Use the shortest possible length, to avoid wasting compressed air energy.

IMPORTANT: The material line should be as straight as possible.
Avoid loops and S-curves in flexible hose. This can affect conveying performance.

Additional parts when field installing ME-loader to the TrueFeed:
- Short piece curved material hose (function = flexible joint between load cell and frame)
- Tube support

Short piece curved material hose



Tube support

2.4 Electrical installation

Solenoid valve
The solenoid valve needs to be connected to the control of the TrueFeed.
The wiring diagram for this connection is located in Appendix B.

3. Operation

3.1 How it works

The ejector pipe is located near the material supply and creates a vacuum on its inlet by compressed air. This vacuum pulls on the material source and begins a flow of material through the ejector pipe. Once inside the ejector pipe, the material is then 'pushed' by the compressed air through the flex hose, towards the hopper of the dosing TrueFeed.

Once inside the hopper, the compressed conveying air is separated from the conveyed material by a combination of gravity and the filter located on top of the loader. The filter is a stainless steel perforated plate with ø0.07 inch {ø2mm} holes, plus an additional filter cloth.

3.2 Setting filling time and filling alarm

For the TrueFeed unit, the filling time and filling alarm need to be set. See section 7.10.

Filling time
Function:
When it is detected that the hopper is running empty the filling system/solenoid valve is switched on. The filling time determines the duration of filling after the empty level is crossed again by filling of material. This means that if the filling time is set to zero the loading system will only switch on when the actual material level is under the empty level. When the filling time is set to 15 seconds the loading system will continue to convey material for 15 seconds after the empty level is crossed.

Setting:
The filling time setting depends on several parameters. It is advised to start with 30 seconds and adjust the time if necessary.

Filling alarm
Function:
The function of the filling alarm is to warn the operator that the hopper is not being filled even when the hopper loader system is switched on. An empty material drum or loss of air pressure are possible causes of a filling alarm.

Setting:
The filling alarm should be set longer then the filling time.

3.3 Adjusting Compressed air flow

Adjusting compressed air flow
It is advised to use a flow regulator for the compressed air (not included).
The air flow will determine how much material will be transferred and how fast the TrueFeed will be replenished with material, with each loading sequence.

Conair recommends adjusting the air setting to its lowest possible level in order to conserve compressed air energy. Parameters such as distance, material line bends, the flow characteristics of the material and vertical rises in the flex hose all play a part in finding the proper setting. Trial and error settings over several loading sequences will work best to determine the correct air level. Too low of a setting may not move material effectively enough to satisfy demands cycle after cycle. Too much air will waste energy and cause the filter on the lid to prematurely blind in an attempt to evacuate excess air.

3.4 Weight level Adjustment

See Chapter 7.10 of the TrueFeed manual for adjustment of the “filling start” weight level and “hopper empty” weight level.

4. Maintenance

4.1 Preventative maintenance schedule

• Daily
Clean the conveying filter.
If you are running a dusty material or regrind you may need to check and clean the filter more often. The filter should be cleaned whenever you change materials.

5. Troubleshooting

5.1 Conveying problems and solutions

WARNING:
Disconnect power and air sources.
Always disconnect the loader from its main power source and compressed air sourse before servicing. This prevents the loader from starting during servicing, which could cause personal injury.

Problem	Possible cause	Solution
Low or no material flow.	Does the filter need to be cleaned?	Check the filter, if it is clogged with dust or fines, clean the filter.
	Are there kinks in the flex hose?	Check the material flex hose line for loops and "S" curves. Remove any loops and "S" curves in the flex hose. Try to keep the hose as straight as possible. Check the material line for holes or cracks
	Are hose connections too loose?	Check the material line hose connections for leaks especially at the ejector pipe connection. Hose clamps should be used.
	Are compressed air adjustments correct?	Check the compressed air adjustment to make sure it is properly adjusted for optimum flow. Too much air will prematurely blind the filter; too little air will create clogs.
	Do you have enough material at the source?	Replace/refill the material container
	Has material plugged the flexible hose?	Check the material flex hose line for loops and "S" curves. Remove any loops and "S" curves in the flex hose. Try to keep the hose as straight as possible.
	Is the compressed air tubing connected?	Assure that the ejector pipe(s) are supplied with compressed air via the supplied tubing.
Loader will not cycle.	Are all electrical connections correct?	Check to make sure the sensor is connected to the control and the solenoid is connected to the control.
Filter clogs frequently.	Is there too much compressed air flow?	Adjust the air flow to minimum possible level to prevent excessive dusting and filter clogging.

6. Technical specifications

Loader model	ME38
Maximum capacity* with 6 ltr hopper Maximum capacity* with 12 ltr hopper Maximum Capacity* (value mentioned only for reference)	121 lb/hr {55 kg/h} (based on 1 minute ON time and 3 minutes OFF time) 220 lb/hr {100 kg/h} (based on 2.5 minutes ON time and 3 minutes OFF time) 496 lb/hr {225 kg/h} (at continuous working)
Standard conveying distance	9.8 ft {3 m}
Material hose	1.5 Ø in. {Ø38 mm} (inside diameter) PVC hose with antistatic wire. Maximum temperature 140°F {60°C}
Compressed air hose	Ø0.24x1 {Ø6x1 mm}, outside ø0.3 in. {ø8 mm}
Compressed air requirements Consumption	58 - 116 PSI {4 to 8 bar} 0.49 to 0.89 yd^3/min {0.38 to 0.68 m^3/min}
Filter type Additional Filter Cloth for fine dust.	Stainless steel Perforated plate, hole size ø0.08 in. {ø2 mm}. Filter cloth 4.7x4.7x0.5 in {120x120x12 mm}, EN779 classification G4
* The capacities are measured with regrind with a bulk density of ~28.0 lb/ft3 {0.45 kg/dm3}. Flake size to ~ 0.6 in. {15 mm}. Capacities are orientation values because capacity depends on material properties.	

APPENDIX F: MV Hopper Loader

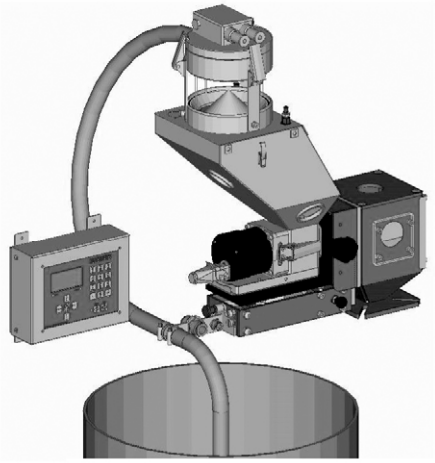
1. Description

1.1 What is the MV-Hopper loader

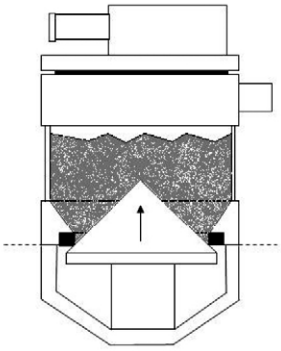
How the MV works

The MV system uses a 3-stage vacuum generator driven by compressed air to create a vacuum that draws material into a chamber that closes. Once the chamber is filled with material, the cone that closes the chamber will open and the material will be discharged into the hopper. The system is equipped with a superior filter to ensure that the finest particles (> 5micron) stay in the system and are not released into the atmosphere. This makes the MV system the most practical and user-friendly system for both powders and granules. The hopper loader is operated by the TrueFeed control.

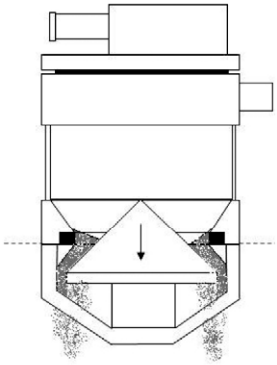
When the MV system is installed on the TrueFeed, it will be triggered by the filling start weight (CONFIGURATIONS menu). The “hopper empty weight” generates a low-level alarm if the hopper is empty.



MV hopper loader



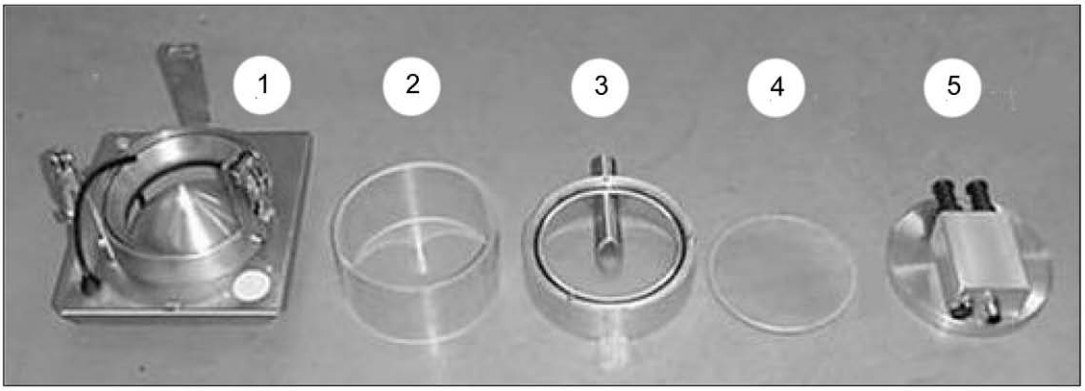
FILLING
Controlled by:
Filling time



DISCHARGING
Controlled by:
Empty time

2. Overview of parts

1	Bottom flange assembly with shut-off cone.
2	Sight glass ø5.9x5.5 in. {ø150x140 mm}
3	Inlet flange - for hose ø0.98x0.87 in. {ø25x22 mm}
4	Stainless steel filter package with aluminum ring, ø5.6 in. {ø141 mm}
5	Top flange with integrated vacuum generator



Pressure regulator

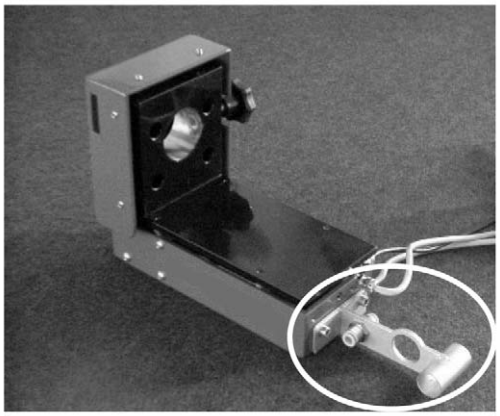
On the bottom side of the pressure regulator
the correct air direction is shown.

Solenoid valve

Air connection diagram:
Connection 1 = Input compressed air
Connection 2 = Output compressed air
Connection 3 = no used/blind plug

2.1 Tube support

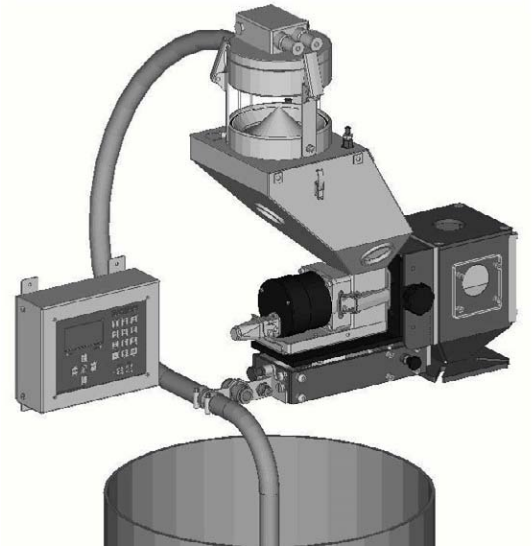
When the MV-Hopper loader is supplied together with the TrueFeed, a tube support is installed on the load frame (see picture below). If the MV-hopper loader is delivered subsequently to a TrueFeed, the user needs to install the tube support. The tube support needs to be installed with two bolts on the frame of the TrueFeed.



Tube support

Function of the tube support

The tube support is needed to create a loop in the flexible hoses shown in the picture below. The loop is necessary for a proper weigh function of the TrueFeed. The length of the loop should not be changed. The 118 in. {300 cm} hose length must have a 34.7 in. {95 cm} loop. (for 6 L and 12 L hoppers)



3. Installation

3.1 Mechanical installation

1. If the MV-loader is delivered subsequently instead of together with a TrueFeed, the tube support needs to be mounted on the frame of the TrueFeed.

2. Install the MV-loader assembly on the TrueFeed. The MV-loader lid fits directly on the hopper on the TrueFeed. Use the quick release clamps on the TrueFeed hopper to mount the MV-loader.

3. Connect an ø0.31x0.23 in. {ø8x6 mm} compressed air hose from the compressed air source to the pressure regulator and from the pressure regulator to Connection 1 on the solenoid valve. Attach the ø0.31x0.23 in. {ø8x6 mm} compressed air source from Connection 2 of the solenoid valve to the connection on the top flange of the MV-hopper loader. The ø0.31x0.23 in. {ø8x6 mm} compressed air source hose must be first connected to the tube support and from the tube support to the top flange of the MV-hopper loader.

4. Connect the material transfer hose to the inlet connection on the MV-hopper loader and to the air wand. The material line also needs to be connected to the tube support. Secure the hose with provided clamps.

ⓘIMPORTANT:
Reduce the material transfer hose to the shortest possible length, to avoid wasting compressed air energy. The material line should be as straight as possible. Avoid loops and S-curves in flexible hose, this can affect conveying performance.

3.2 Electrical installation

Solenoid valve
The solenoid valve needs to be connected to the control of the TrueFeed. If the hopper loader is delivered together with a dosing unit, the electrical connection is already made. The wiring diagram for this connection can be found in this user manual.

3.3 Compressed air requirements

The MV-loader uses compressed air to create vacuum. The compressed air source must deliver a maximum of 58-116 PSI {4-8 bar} of clean, dry (non-lubricated), air pressure.

ⓘ Make connections from the solenoid and the ejector pipe with the provided compressed air tubing. Quick disconnect fittings are provided for these connections. The tubing should be cut to length for maximum efficiency of the system. Use straight cuts to assure a good square tubing end. Ensure everything is connected firmly.

⚠ CAUTION:
Be sure to provide hazard-free routing of the tubing, keep it away from hot or moving surfaces and out of the way of personnel.

3.4 Air wand adjustment

The air wand can be adjusted in three different positions, which position is required depends on the properties of the material to conveyed. The adjustment of the wand regulates the mixture of conveying air and material to be conveyed.

Position 1: Standard position

Position 2: Additional conveying air

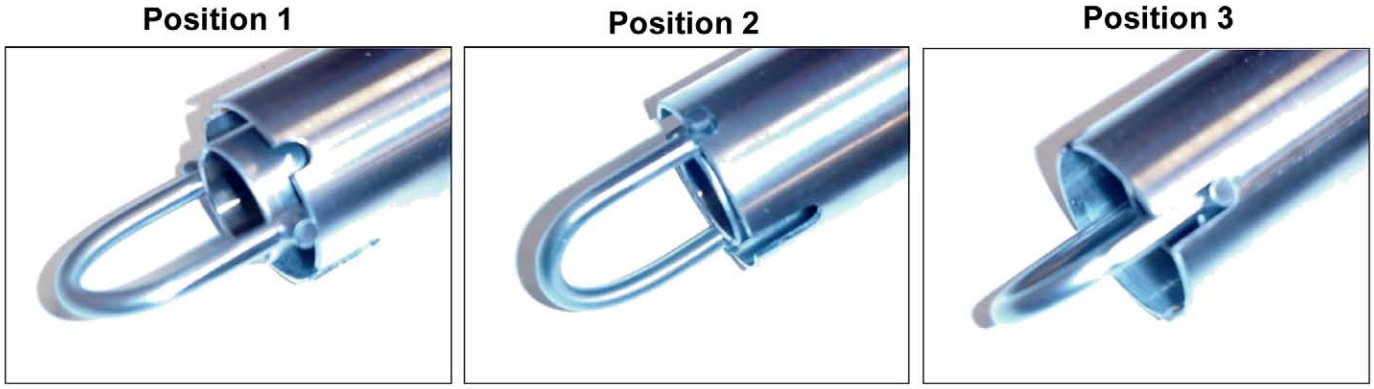
Position 3: Maximum conveying air

Conair recommends starting with Position 1.

If there is no or minimal material conveying, the air wand can be adjusted to Position 2. The larger the granule, the less extra air is needed for conveying.

When Position 2 or 3 is used when Position 1 is sufficient, it can result in poor operation:

- Reduced capacity
- More frequent filter clogging.



4. Operation

4.1 Starting up the MV-Hopper loader after installation

For safety reasons, the hopper loader is only activated when the TrueFeed is in the START mode. To deactivate the hopper loader, in case of emergency, press the “STOP” button on the control. Be aware that the TrueFeed will also deactivate.

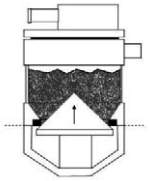
1. Adjust the pressure regulator to a minimum of 58 PSI {4 bar} and adjust to a higher value if necessary.

2. Adjust the air wand to the correct position, most applications start with Position 1.

3. Determine the correct filling level for the MV hopper loader - see Chapter 7.10 for adjustment of the “filling start” weight level and “hopper empty” weight level.

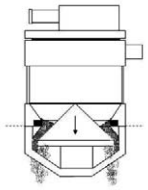
4. For all TrueFeeds, the filling time, empty time, amount of filling cycles and filling alarm parameters have to be set in the control by the user. See Chapter 7.10 for more information.

Filling time [sec.]



During this time the MV system sucks material into the vacuum chamber. The filling time setting depends on several factors. Conair recommends starting with the default of 20 seconds and adjust if necessary. For maximum performance, use a filling time that will fill the loader until it is covering the sight glass completely. A longer filling time will affect optimum performance.

Empty time [sec.]



During this time the cone that closes the chamber will open and material falls down into the hopper of the dosing unit. Conair recommends starting with the default of 5 seconds which will be sufficient in most applications. In case of poor flowing material this time will need to be extended. A longer empty time than necessary will affect optimum performance.

Fill cycles [number]

Number of extra fill cycles after the material is above the empty level.
Example:
When the amount of fill cycles is set to “0” the MV-loader will perform filling cycles until the material level is above the “empty level”. When the amount of fill cycles is set to “1” the MV-loader will perform 1 extra filling cycle after the material level is above the “empty level”. Conair recommends starting with the default of 3 extra filling cycles, setting more filling cycles than necessary will affect optimum performance.

Alarm cycles [number]

Number of idle fill cycles before fill alarm will appear. The number of alarm cycles needs to be more than the number of filling cycles.
Example:
If the amount of alarm cycles is set to 10 times, the MV-loader will try with 10 extra filling cycles to get material conveyed to the TrueFeed. If still no material is conveyed after these 10 extra cycles an alarm will be activated.

4.2 Adjusting compressed air flow

The compressed air flow can be regulated with the provided pressure regulator. The air flow will determine how much material will be transferred and how fast the TrueFeed will be filled with material, with each loading sequence.

Conair recommends adjusting the air setting to its lowest possible level in order to conserve compressed air energy. Parameters such as distance, material line bends, the flow characteristics of the material and vertical rises in the flex hose all play a part in finding the proper setting. Trial and error settings over several loading sequences will work the best to determine the correct air level. Too low of a setting may not move material effectively enough to satisfy demands cycle after cycle. Too much air will waste energy and cause the filter to prematurely blind in an attempt to evacuate excess air.

5. Maintenance

5.1 Preventative maintenance schedule

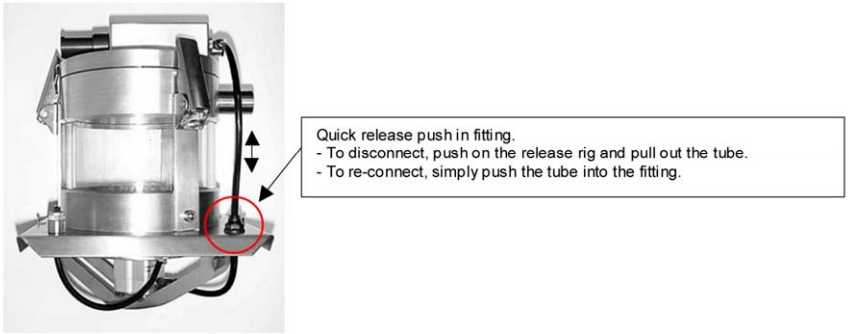
• Daily
Clean the conveying filter.
If you are running a dusty material or regrind you may need to check and clean the filter more often. The filter should be cleaned whenever you change materials.

5.2 Cleaning/Disassembling the loader

The MV-loader assembly can easily be disassembled for cleaning without tools.

To clean the MV-Loader:

1. Disconnect the main power and compressed air sources.
2. Remove the material transfer hose from the inlet pipe of the loader.
3. Disconnect the three (3) quick release clamps on the inlet flange
4. Disconnect the ø0.23x0.16 in. {ø6x4 mm} compressed air hose from the push in fitting in the lid (Pictured below).
5. Remove the stainless steel filter screen.
6. Remove the inlet flange.
7. Remove the sight glass.
8. If previous material is a “dirty” material, store the filter until the next run of that color and use extra filters. Otherwise use clean shop air to blow out the entrapped dust remaining in the filter.
9. Clean the hopper assembly by wiping it clean with a clean dry cloth.
10. Clean the material transfer hose(s) and air wand. If previous material is a “dirty” material store the soiled parts until the next run of that color and use extra parts for material transfer.
11. Re-assemble the loader parts in the reverse order.
    - Ensure that before replacing the sight glass, no material is on the rubber o-rings at the bottom and upper side of the sight glass.
    - Reconnect the compressed air tube (picture below)
    - Replace the filter in the correct direction, fine side down, rough side up.


Quick release push in fitting.
- To disconnect, push on the release rig and pull out the tube.
- To re-connect, simply push the tube into the fitting.

6. Troubleshooting

6.1 Conveying problems and solutions

Warning

Disconnect power and compressed air sources

Always disconnect the control from its main power source and disconnect the compressed air source before servicing. This prevents the loader from starting during servicing, which could cause personal injury.

Problem	Possible cause	Solution
Low or no material flow.	Does the filter need to be cleaned?	Check the filter, if it is clogged with dust or fines, clean the filter.
	Are there kinks in the hose?	Check the material flex hose line for loops and “S” curves. Remove any loops and “S” curves in the flex hose. Try to keep the hose as straight as possible. Check the material line for holes or cracks.
	Are the hose connections too loose?	Check the material line hose connections for leakes especially at the ejector pipe connection. Hose clamps should be used.
	Are the rubber O-rings clean at the bottom and upper side of the sight glass?	Disconnect the three quick release clamps and remove the sight glass. Clean the bottom O-ring. Replace the sight glass and clean the upper O-ring. Check and clean the O-rings at the stainless steel filter screen also.
	Are the compressed air adjustments correct?	Check the compressed air adjustments to ensure it is properly adjusted for optimum flow. Too much air will prematurely blind the filter; too little air will create clogs.
	Do you have enough material at the source?	Replace/refill the material container.
	Has the material blocked the flexible hose?	Check the material flex hose line for loops and “S” curves. Remove any loops and “S” curves in the flex hose. Try to keep the hose as straight as possible.
	Is the compressed air tubing connected?	Ensure that the vacuum generator of the loader is supplied with compressed air via the provided ø0.31x0.23 {ø8x6 mm} tubing.
Loader will not cycle.	Are all electrical connections correct?	Ensure that the solenoid valve is connected to the control.
Filter clogs frequently.	Is there too much compressed air flow?	Adjust the air flow to the lowest possible level to prevent excessive dusting and filter clogging.

7. Technical specifications

General specifications	
Loader volume (viewing chamber)	0.05 ft3 {1.5 L}
Standard conveying distance	9.8 ft {10 m}
Compressed air tubing	Ø0.31x0.23 {Ø8x6 mm}
Compressed air requirements Comsumption	58 to 116 PSI {4 to 8 bar} clean, dry (non-lubricated), air pressure. 0.19 to 0.35 yd3/min. {0.15 to 0.27 m3/min.}
Filter type Stainless steel filter screen	Ø5.5 in. {Ø141 mm} filtering particles to >5 micron.

Loader model: MV25 For micro granules and normal granules.	
Maximum capacity with a 0.21ft2 {6 L} hopper Maximum capacity with a 0.43ft2 {12 L} hopper	77 lb/ h {35 kg/h}* 154 lb/h {70 kg/h}* Note* Measured with normal granules, ~0.8 kg/dm3, granule size 0.11 - 0.15 in. {3 - 4 mm} Mentioned capacities are orientation values, actual capacity is strongly related to material properties.
Material hose	PA hose Ø0.5x0.6 in. {Ø13x16 mm} Maximum temperature 158° F {70° C}

Specifications may change without notice. Contact a Conair representative for the most current informaiton.

APPENDIX G: We're Here to Help

Conair has made the largest investment in customer support in the plastics industry. Our service experts are available to help with any problem you might have installing and operating your equipment. Your Conair sales representative also can help analyze the nature of your problem, assuring that it did not result from misapplication or improper use.

How to Contact Customer Service

To contact Customer Service personnel, call:

Note: Normal operating hours are 8:00 AM - 5:00 PM (EST). After hours emergency service is available at the same phone number.

From outside the United States, call: 814-437-6861

You can commission Conair service personnel to provide on-site service by contacting the Customer Service Department. Standard rates include an on-site hourly rate, with a one-day minimum plus expenses.

Before You Call…

If you do have a problem, please complete the following checklist before calling Conair:

- Make sure you have all model, serial and parts list numbers for your particular equipment. Service personnel will need this information to assist you.
- Make sure power is supplied to the equipment.
- Make sure that all connectors and wires within and between control systems and related components have been installed correctly.
- Check the troubleshooting guide of this manual for a solution.
- Thoroughly examine the instruction manual(s) for associated equipment, especially controls. Each manual may have its own troubleshooting guide to help you.
- Check that the equipment has been operated as described in this manual.
- Check accompanying schematic drawings for information on special considerations.

Equipment Guarantee

Conair guarantees the machinery and equipment on this order, for a period as defined in the quotation from date of shipment, against defects in material and workmanship under the normal use and service for which it was recommended (except for parts that are typically replaced after normal usage, such as filters, liner plates, etc.). Conair's guarantee is limited to replacing, at our option, the part or parts determined by us to be defective after examination. The customer assumes the cost of transportation of the part or parts to and from the factory.

Performance Warranty

Conair warrants that this equipment will perform at or above the ratings stated in specific quotations covering the equipment or as detailed in engineering specifications, provided the equipment is applied, installed, operated and maintained in the recommended manner as outlined in our quotation or specifications. Should performance not meet warranted levels, Conair at its discretion will exercise one of the following options:

- Inspect the equipment and perform alterations or adjustments to satisfy performance claims. (Charges for such inspections and corrections will be waived unless failure to meet warranty is due to misapplication, improper installation, poor maintenance practices or improper operation.)

- Replace the original equipment with other Conair equipment that will meet original performance claims at no extra cost to the customer.

- Refund the invoiced cost to the customer. Credit is subject to prior notice by the customer at which time a Return Goods Authorization Number (RGA) will be issued by Conair's Service Department. Returned equipment must be well crated and in proper operating condition, including all parts. Returns must be prepaid.

Purchaser must notify Conair in writing of any claim and provide a customer receipt and other evidence that a claim is being made.

Warranty Limitations

Except for the Equipment Guarantee and Performance Warranty stated above, Conair disclaims all other warranties with respect to the equipment, express or implied, arising by operation of law, course of dealing, usage of trade or otherwise, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

APPENDIX H: TrueFeed Quality Checklist

Date of production : ……
Conair order number : ……
Control serial number : ……
Software version : ……
Motor serial number : ……
Unique ID code : ……

Check original order with internal packing list
Order code : ……

Cylinder check
- ❑ Fill in the type of cylinder …….
- ❑ Fill in the cylinder length …….in {mm}
- ❑ Check for cylinder wrench

Stepper motor check
- ❑ Direction motor rotation from rear view (motor number side)
- ❑ Check if cable and connector are fastened well.
- ❑ Check sealing.

Hopper check
- ❑ Check hopper edges for blurs
- ❑ Check lid for sharp edges
- ❑ Check slide valve
- ❑ Check sealing ring
- ❑ Check sight glasses

Throat adaptor check
- ❑ Check sight glass and the inside if everything is clean
- ❑ Check fitting of the feeding house
- ❑ Check curled knob length and fitting

Complete unit check / Functional test at least 4 hours
- ❑ Perform load cell calibration
- ❑ Perform a weight check with the 1.1 lb {500 g} reference weight
- ❑ Perform a Master Reset ALL [CONFIGURATIONS menu]
- ❑ Check internal File System by making a JOB [PRODUCTION menu]
- ❑ Perform functional test with motor (200 rpm)
- ❑ Check timer, tachometer and relay
- ❑ Power cable ……. /warning label
- ❑ Check input cable/ warning label
- ❑ Check appropriate users manual
- ❑ Check (optional) alarm flash light
- ❑ Check (optional) valve output

Automatic hopper loader check (Optional)
- ❑ No automatic hopper loader supplied
- ❑ ME hopper loader
- ❑ MV hopper loader
- ❑ EX hopper loader